

# University News

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JANPHYALA B.G. TILAK

## **Higher Education Reform in India**

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## Higher Education Reform in India

Jandhyala B.G. Tilak\*

### Country Profile

India is one of the most ancient civilizations in the world with a rich cultural heritage. Ever since India attained independence in 1947, and became a Republic in 1950, the country has made rapid progress in terms of social, economic and cultural development. India has a federal system of government with two-layer administration : the union government at the centre, and state governments at state (or provincial) level. Presently there are 25 states governed by elected legislatures and seven union territories administered by the union government. States are further divided into districts; and there are currently 450 districts, in all.

The country, geographically spread over 3,287 thousand sq km., has an estimated population of 936 million in 1995 living in more than half a million villages. Accounting for about 16 per cent of the world's population, India is only next to China in the world. With respect to the size of the total gross national product, India ranks fairly high even among the developed countries, particularly after adjusting for purchasing power parity; but the national income per capita is comparatively very low, (US \$ 340) in 1995.

### Education in India

The education edifice in India is one of the largest ones in the world, with a network of more than 925 thousand institutions with 190 million students enrolled at various levels in 1996-97. The number of students in India outnumbers the total population of united Germany, England and Canada taken together. During the fifty years of independence period, the education system got deepened and widened as well. According to the 1991 census, the effective literacy (of the age-group 7+) rate was 52.2 per cent.

Education was a *state* responsibility until 1976, when it was brought into a 'concurrent' list of the Constitution of India that gave more powers and responsibilities to the union government. Though education is a concurrent subject, state governments enjoy considerable freedom with respect to several aspects in general. At higher education level, the University Grants Commission (UGC) plays a significant role. Universities are established by the union or state government and are funded by the UGC and state governments. Both union and state governments together invest about 3.5 per cent of national income on education (1995-96). This amounts to about ten per cent of all government expenditure. The government has resolved to raise the proportion of national income to be invested in education to at least six per cent by the beginning of the 21st century.

### Higher Education in India

#### *The System of Higher Education*

Higher education is offered in India in a variety of institutions, as described in Table 1. The total number of universities include six open universities — one central university and five state universities — all

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run by the government. They also include four universities exclusively meant for women, while all other institutions are open to both males and females. There are no universities exclusively for males. Similarly there are nearly a thousand colleges in the country which give admission exclusively to women students. In addition to providing most of the courses available in other institutions, these colleges and universities provide a few additional courses which are of special interest to women.

Apart from degree awarding university level institutions, there are 8,500 colleges that provide mostly bachelor's and some times master's level education. A majority of the colleges are arts, science and commerce colleges offering education in humanities, natural sciences, arts and commerce. There are above 400 engineering and technical colleges, 655 medical colleges and nearly 700 teacher education/training colleges. While many universities in India provide general as well as professional education, there are some universities which exclusively provide professional education, and some exclusively general.

Most of the higher education institutions in India are public institutions. There are no private universities so far, though efforts were initiated a few years ago to allow opening of private universities. There are, however, private colleges in a big number. A majority of the private colleges are financially supported by the state. Self financing private colleges receiving no state support are small in number and their rapid increase is a recent phenomenon.

Higher education in India is coordinated by several agencies. While most of general higher education falls within the jurisdiction of the UGC, professional institutions are coordinated by different bodies. The All-India Council for Technical Education (AICTE) is responsible for coordination of technical and management education institutions. The other statutory bodies are Medical Council of India (MCI), Central Council of Indian Medicine, the Homoeopathy Central Council, the Indian Council of Medical Research (ICMR), Indian Nursing Council, the Dental Council, the Pharmacy Council, the Bar Council of India, the Indian Council of Agricultural Research (ICAR), etc. There are also a few such bodies at state level, such as State Councils of Higher Education that were established recently. There is yet another type of a coordinating agency, called Association of Indian Universities (AIU), which was earlier known as In-

ter-University Board of India. All the universities and other institutions are members of the AIU. The AIU has no executive powers, but plays an important role as an agency of dissemination of information and as an advisor both to the government and/or UGC and universities.

### Growth of Higher Education in India

In modern India, particularly in the post-independence period, higher education has expanded fast, and higher education is mostly public in nature. (Figure 1) Today India ranks fairly high in terms of the size of the network of higher education institutions, with 6.4 million students enrolled in 1995-96. The teaching force numbers about 240 thousand. The total enrolment however, forms only about six per cent of the relevant age-group (17-23) population. The corresponding ratio in developed countries is on an average above 40 per cent, and in the developing countries seven per cent. Secondly, a large proportion of the enrolments in higher education (88.2%) are at undergraduate level. Students in postgraduate (9.4%) and research studies (1.1%) are very few. 1.3% of students are enrolled in Diploma/certificate courses. Thirdly, about 40 per cent of the students are enrolled in Arts courses, another one fifth each in commerce and sciences (natural and physical sciences). Other disciplines account for small proportions. Though the enrolment ratio is not high, in terms of numbers the output is very large. In scientific and technical manpower, India could become the third largest reservoir in the world. Compared to the situation that the country inherited from colonial rulers about half a century ago, the figures given in Table 2 mark a phenomenal expansion of the system.

Such an expansion was possible, *inter alia*, due to public financing of higher education. In relative terms, the share of the government in financing higher education has increased to about 80 per cent of the total expenditure on higher education, and the shares of all other sources declined, as shown in Table 3.

### Recent Reforms in Higher Education

After the *National Policy on Education* (1986) was formulated, quite a few important policy reforms were introduced in higher education in India that have significant influence on quality, quantity and equity in higher education. To improve the quality of higher education through orientation and reorientation of college teachers on a regular basis, a

number of academic staff colleges were established. There are presently 45 such colleges. In addition, a few university departments also organise refresher courses for college teachers. Second, to encourage institutional innovations and experimentation, emphasis has been placed on autonomy; and a good number of colleges are given autonomy under the programme of establishment of autonomous colleges. Third, with a view to improve access to higher education in rural areas and also at the same time to improve relevance of higher education, emphasis was laid on opening up of rural institutions of higher education and open learning systems on the one hand, and introduction of vocational courses at college level. Lastly, realising the importance of technology in higher education, information technology has been given high attention and universities and colleges are provided on a large scale with computers, and other facilities for modernisation and automation.

Most recent reforms include reforms relating to financing of higher education, which are briefly described below.

#### **Decline in Government Expenditure on Higher Education**

All the programmes of not only expansion, but also those that aim at improvement in quality and equity require huge resources. The economic reform policies introduced in India at the beginning of the 1990s, however, did not allow the government to allocate adequate resources to higher education. In fact, the trends in public expenditure on higher education during the 1990s have not been positive. Budgetary outlays for higher education have been seriously squeezed. Rather, it is often being stated that government's ability to finance higher education in India has come to a saturation level.

- a) The share of higher education in the total expenditure on education of the union government has declined from 32 per cent to 22.5 per cent between 1989-90 and 1995-96 and the corresponding figures relating to state budgets declined from 12.7 per cent to 11 per cent (Table 3) (Figure 2).
- b) The relative priority given to higher education in allocation of resources in the Five Year Plans has declined very significantly from 25 per cent in the fourth Five Year Plan to seven per cent in the eighth Five Year Plan (1992-97) (Table 4).
- c) In real terms, the annual 'plan' (development) expenditure on higher education has declined by

about 15 per cent between 1989-90 and 1994-95. Even the 'non-plan' (maintenance) expenditure has declined by twelve per cent during this period, causing serious problems in maintaining even status quo at the universities.

- d) Declines in absolute levels of expenditure are very steep in case of expenditure on research — both in case of general and technical education, the latter suffering more (Figure 3).
- e) Central government's expenditure on scholarships in 1994-95 declined to one-third of the level in 1989-90 even at current prices (and at real prices, the decline is by four-fifths) (Table 5).

While one can note some more details on the decline in public expenditure on higher education in India after the adjustment policies were introduced, these figures are sufficient to conclude that public resources have not flown into higher education sufficiently to maintain the huge system at the pre-reform period level in terms of quantity, quality and equity in higher education. In fact, higher education has been subject to severe neglect in terms of not only resource allocation, but also in terms of coherent policy and information.

#### **Recent Attempts to Reform Higher Education**

Facing serious resource crunch, the Government of India indicated that subsidization of higher education would be gradually reduced by about fifty per cent in the next few years. The government also appointed two committees on mobilisation of additional resources for higher education — one for technical education institutions and another for central universities. The two committees have emphasised the need for making special efforts by higher education institutions to raise their own resources. Among the various measures to mobilise additional resources, important ones suggested are :

- \* Institutions should raise the fee levels in such a way that at least 20 per cent of the annual recurring cost per student is recovered from the students in the form of fees and from other sources (compared to the present level of about 15 per cent, as shown in Table 6).
- \* Faculty of these institutions may be encouraged to participate in consultancy activities.
- \* Institutions should also raise resources from other internal and external sources, such as sale of output, voluntary donations from industry

and community at large, and by diversifying their areas of activities, etc.

- \* Loan programmes may have to be revitalised as an important source of revenues for higher education in the long run.

Following the formal freezing of budgetary resources for universities and colleges, and the above recommendations, many universities and other institutions of higher education have been required to reform their fee structures. Accordingly there have been modest to steep increases in students' fees of various types — tuition fees, examination fees, admission fees, application fees, registration fees etc, in several universities and colleges.

Banking sector has been persuaded to launch commercially viable education loans to students going for higher education, particularly higher professional/technical education.

Government has also offered generous tax concessions to contributions to higher education institutions and incentives are also offered to institutions in the utilisation of these funds.

Along with general increases in fees, universities also started responding to market demands to make quick financial gains. These responses include offering 'marketable' self financing courses, such as hotel management, training on handling computer packages, fashion technology etc, for which full or more than full cost fees are charged from the students. Since the aim is to quickly encash the demand for such courses, such courses are mostly short term in nature and include training programmes.

In the same context, it is also important to note the shift in emphasis in the universities from higher education to training. For example, while computer engineering (hardware and software) has been an important area of study in the universities for a long time, universities now tend to offer courses in the use of computer applications and packages and mechanics of computers (assembling) as they become more saleable than the former ones. In the process universities have to compete with training institutions that have come up in formal and informal sectors of the economy. Still the training in the universities is preferred to outside, not only because university training is relatively cheaper than in commercial training institutions, but also more importantly, universities award 'recognised' degrees and certificates.

Further, distance/open education or correspondence courses are also viewed by the universities favourably more as revenue generating courses than as academically important avenues of imparting learning. Several studies have shown that many distance education centres in the universities have generated huge surpluses for the universities.

### Summary

One can summarise the emerging trends, the recent reforms and their likely or tentative consequence in higher education in India, which are somewhat similar to those in many developing countries that are in transition, in the form of a table (Table 7). These trends are not exhaustive; they are only indicative. The features listed under the two categories viz., 'conventional system' and 'emerging system' include some of the changes that have taken place and are slowly taking place in some parts of the country. Neither of the two systems is final in any sense.

While some reforms are necessary to improve the efficiency of higher education, some of the attempts to reform higher education seem to go against some well-cherished functions of higher education. Emphasis is laid on financial efficiency, measured in terms of resource generation instead of academic excellence. There is a need to balance the main functions of higher education, and resource needs of the system. The basic characteristics of higher education, such as the 'public' good nature of higher education and social value of higher education on the one hand, and the needs of the new globalised Indian economy on the other, should be kept in mind while formulating policies for the development of higher education.

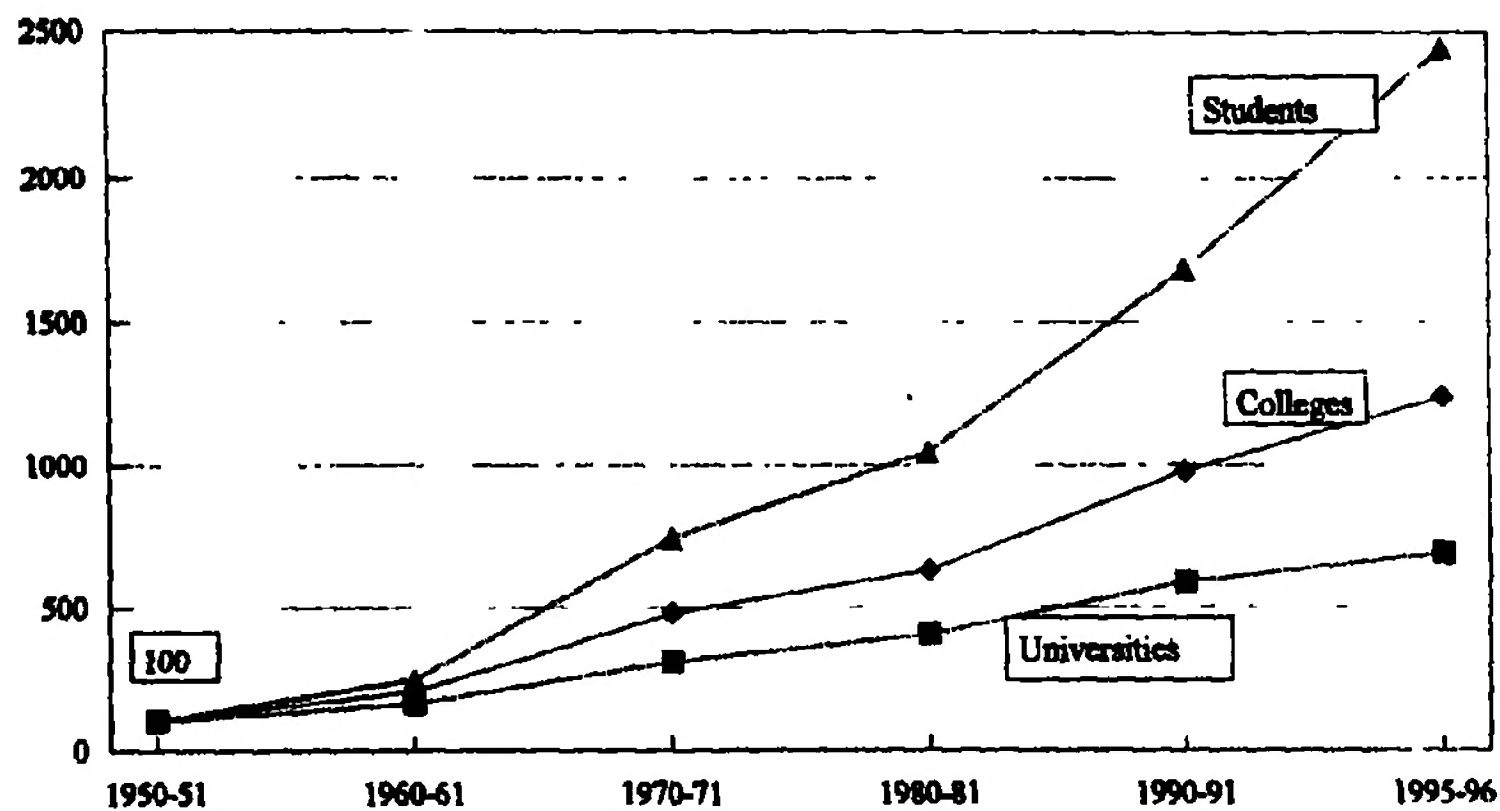
*[Based on the paper presented in the Regional Seminar on Higher Education Reform, held at the National Institute of Educational Research (NIER), Tokyo, Japan, 15-26 June, 1998.]*

**Table 1 : Type and Number of Higher Education Institutions in India, 1996-97**

	Number
Universities	178
Institutions Deemed to be Universities	39
Institutions of National Importance	11
Research Institutions	65
Colleges for General Education	6759
Colleges for Professional Education	1770

Source : *Selected Educational Statistics, 1996-97* (New Delhi : Ministry of Human Resource Development, 1997).

**Figure 1**  
**Index of Growth of Higher Education in India**

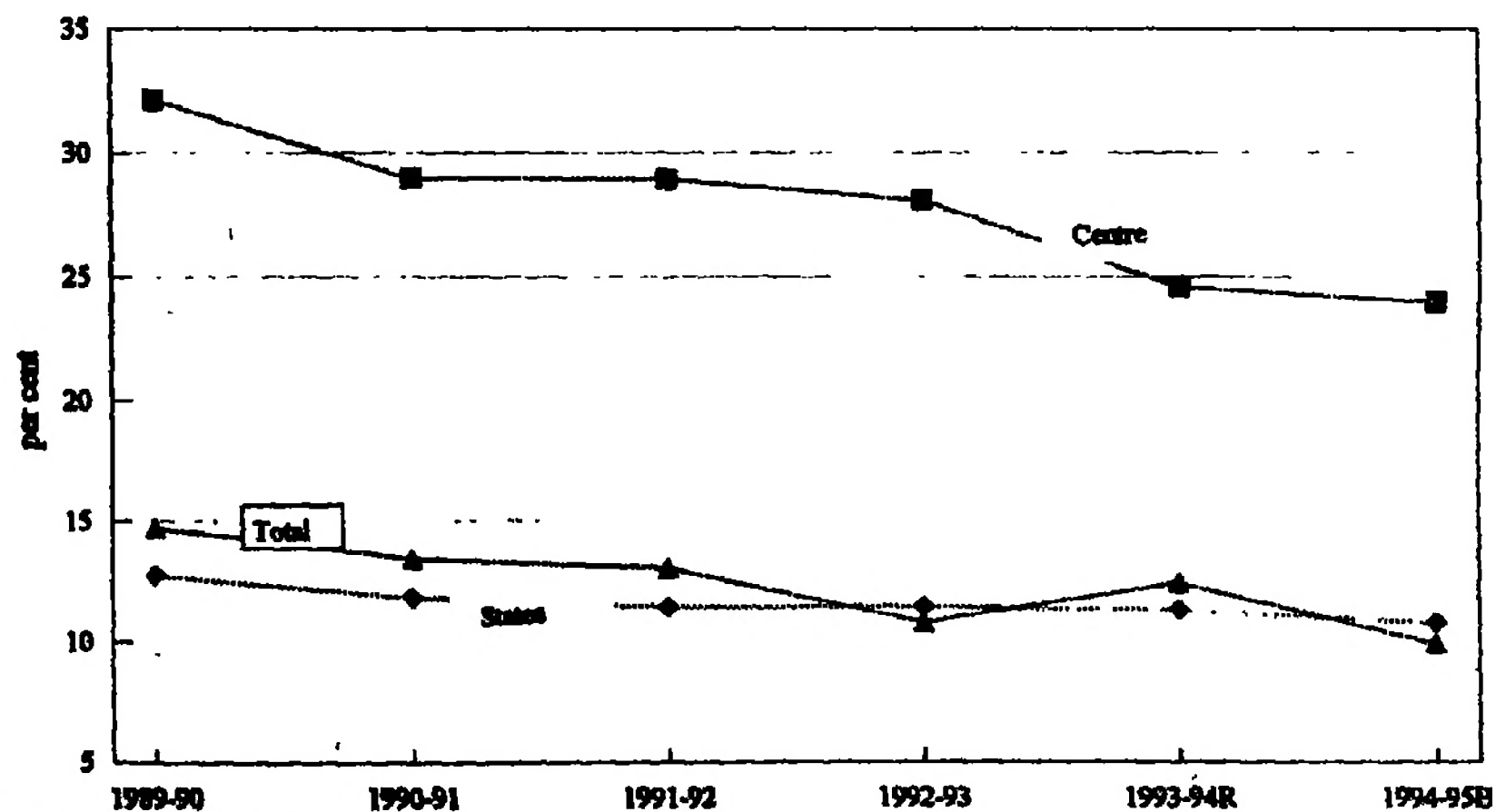


Source: Annual Report 1995-96 (UGC, New Delhi)

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**Figure 2**

**Share of Higher Education in Total Expenditure on Education of the Central, State and Total Government in India (per cent)**



Note: R: Revised estimate; B: Budget estimate



Figure 3

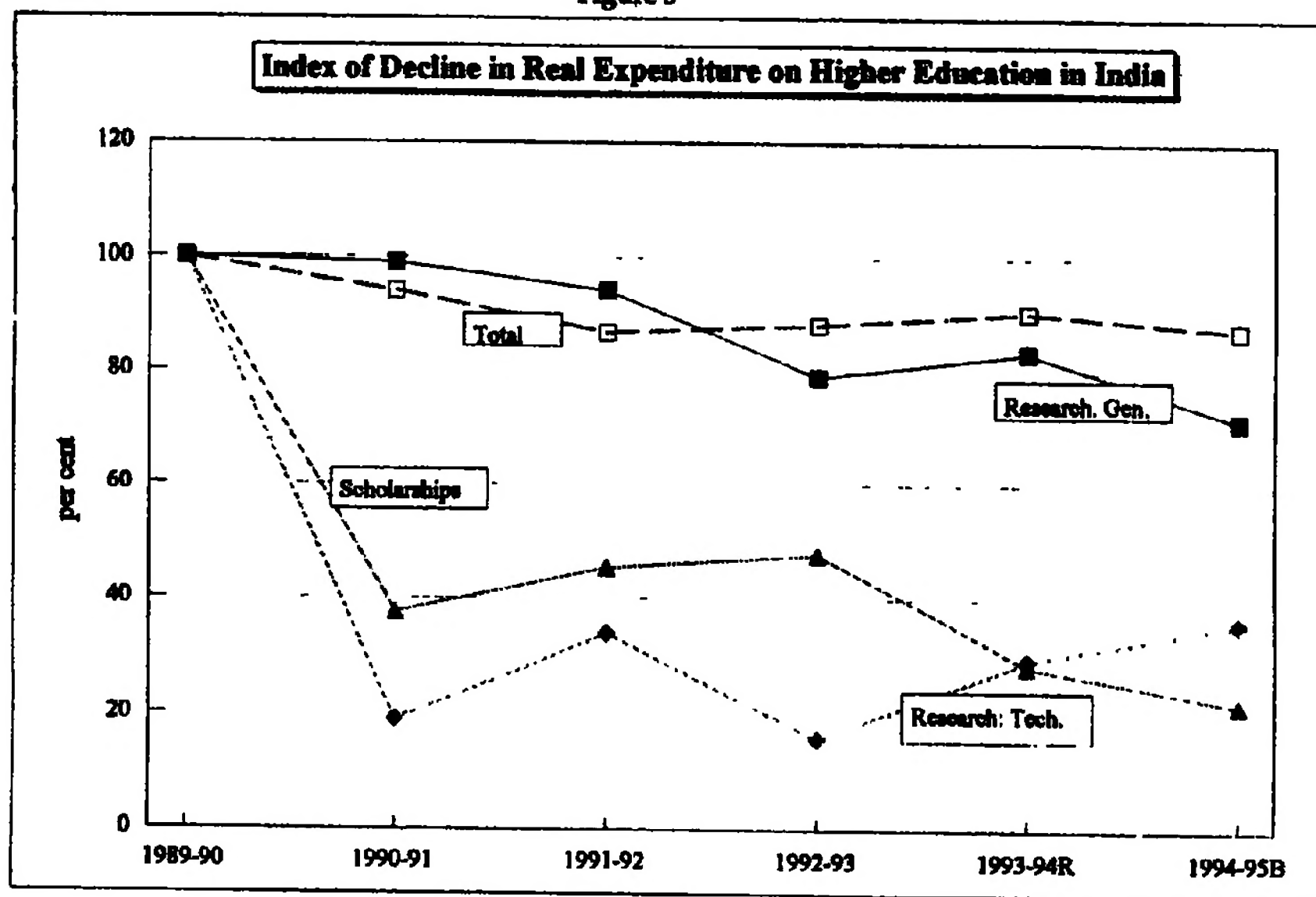


Table 2 : Growth in Higher Education in India

	1950-51	1990-91	1995-96
Institutions			
Universities*	30	177	207
Colleges	750	7346	9278
Enrolment ('000s)	263	4925	6425
Teachers ('000s)	24.0	272.7	310.6

Note : \*includes institutions deemed to be universities, but excludes other institutions.

Source : UGC Annual Report 1995-96 (New Delhi : University Grants Commission); and *Selected Educational Statistics* (New Delhi : Ministry of Human Resource Development) (relevant years).

Table 3 : Sources of Funds for Higher Education in India (%)

	Government	Fees	Others	Total
1950-51	49.4	36.8	13.8	100
1960-61	53.5	34.8	11.7	100
1970-71	61.0	25.5	13.5	100
1980-81	72.8	17.4	10.8	101
1986-87	75.9	12.6	11.5	100

Source : Based on *Education in India* (various years) (New Delhi : Ministry of Human Resource Development).

Table 4 : Share of Higher Education in Total Expenditure on Education in India (%)

	Centre	States	Total
1989-90	32.16	12.74	14.69
1990-91	28.94	11.81	13.44
1991-92	28.92	11.43	13.03
1992-93	28.09	11.45	10.80
1993-94	24.53	12.15	13.26
1994-95R	25.62	11.60	12.86
1994-96B	22.52	11.03	12.00

Note : R : Revised estimates, B : Budget estimates

Source : Analysis of Budgeted Expenditure on Education (New Delhi : Ministry of Human Resource Development) [various years]

Table 5 : Share of Higher Education in Total Education Expenditure in Five Year Plans in India

Plan/Period	Per cent
Sixth Five Year Plan (1980-85)	18
Seventh Five Year Plan (1985-90)	14
Annual Plans (1990-92)	11
Eighth Five Year Plan (1992-97)	7

Source : Tilak (1996).



**Table 6 : Declining Government Expenditure on Higher Education in India (Index of Growth in Real Expenditure on Higher Education)**

	Total		on Research			on Scholarships		
	Plan	Non-Plan	Total	General	Technical	Plan	Non-Plan	Total
1989-90	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1990-91	75.8	97.1	94.3	99.0	19.0	19.8	48.3	37.6
1991-92	71.4	89.2	86.9	94.4	33.9	59.3	36.9	45.4
1992-93	66.3	91.5	88.2	79.0	15.7	59.8	40.4	47.8
1993-94R	75.2	92.8	90.5	83.3	29.5	14.6	37.1	28.6
1994-95B	85.5	87.7	87.4	71.7	35.8	3.0	33.4	21.9

*Note* : R - Revised estimates; B - Budget estimates

*Source* : Tilak (1996).

**Table 7 : Emerging Trends in Policy, Planning and Financing of Higher Education in India**

<i>Feature</i>	<i>Conventional System</i>	<i>Emerging System</i>
Approach	Welfare	Market Approach
Management	Public	Mixed and Private
Financing	Public Financing	Private Financing
<b>Private Institutions</b>		
Financing	State assisted	Self Financing
Recognition	Government recognition	Instns requiring no Govt recognition
Degree/Diplomas	Degree awarding institutions	Non-Degree (Diploma/Certificate) awarding Instns
Considerations	Philanthropy, charity, education	Commercial : profit
Fees	No fees/Low Fees	Introduction of Fees/High Fees
Student Loans	No loans	Introduction of Loan Programmes
	Commercially ineffective loans	Effective/Commercially Viable Loan Programmes
Security/mortgage	no security	security/mortgage
Repayment	high default	expected high recovery
Basis	Educational qualifications and economic needs (merit and means)	commercial viability
Disciplines of study	Scholarly/academic	Self-Financing/Commercially viable/profitable courses and training
Mode	formal/full-time education	Open/Distance/Part-Time Education
Selection criteria for Heads of Instns	academic/administrative background	Expertise in Financial/Money Management; and in Resource Generation

# The Rationale of Studying Economics of Education as an Academic Subject

M. Khajapeer\*

## The Birth of Economics of Education

It may be said with a fair degree of confidence that there was no such subject as Economics of Education prior to the Presidential Address of Theodore W. Schultz, Professor of Economics at the University of Chicago, to the Annual Meeting of the American Economic Association in December 1960. Several economists prior to Schultz did make a mention of the economic aspects of education. But they did not realise the importance of knowledge and skill as an essential input in the process of production as it was understood by Schultz. Attributing the birth of Economics of Education to the above mentioned address of Schultz, Blaug (1968, p.11) contends that "...most economists before 1960 were not aware of the fact that widely different observed economic phenomena could be rendered intelligible by the idea of human capital formation." Schultz added a new dimension to the theory of economic development by identifying and introducing a new input, namely, human capital, into the process of economic development.

According to Schultz, investment in human capital provides a major explanation to differences in national output. He contended that attributing economic development only to physical capital provides a grossly inadequate explanation of development. Quoting Johnson (1960), he said in his address referred to above thus : "Laborers have become capitalists not from a diffusion of the ownership of corporation stocks, as folklore would have it, but from the acquisition of knowledge and skill that have economic value." He (1960) continued in his address thus : "This knowledge and skill are in great part the product of investment and, combined with other human investment, predominantly account for the productive superiority of the technically advanced countries. To omit them in studying economic growth is like trying to explain Soviet ideology without Marx" (Schultz in Blaug, 1968). He reiterated the importance of human resources in his address in 1960 thus : "The failure to treat human resources explicitly as a form of capital, as a produced means of product, as the production of investment, has fostered the

retention of the classical notion of labor as a capital to do manual work requiring little knowledge and skill, a capacity with which, according to this notion, laborers are endowed about equally. This notion of labor was wrong in the classical period and it is patently wrong now" (Schultz, 1961). This is why Schultz, a noble prize winner in Economics, is known as father of investment in education school.

His address in 1960 laid foundation for the subject of Economics of Education, because people started thinking seriously about the role of human capital in development, which led to many theoretical orientations and studies in the area of Economics of Education. From this point of view the subject of Economics of Education is about four decades old. In addition to Schultz, Gary Becker, Edward Denison, John Vaizy, Simon Kuznets, Robert Solow, Selma J. Mushkins, Irwing Fisher, H. Von Thunen, Adam Smith, Marshall etc were some of the economists, who contributed to the idea of human capital and its importance in economic development. Solow won Noble Prize in 1987 in Economics Science for his contribution of residual factor, an undefined broad category that has come to be known as innovation of technology. A detailed definition of the residual factor is given elsewhere in this paper.

It will be a disservice to the Indian educationists if a mention of their contribution in this regard is not made. Once again due to the limitations of space, only a mention of some glimpses of the contributions of only three persons, namely, Mahatma Gandhi, Jawaharlal Nehru and Dr. Zakir Husain is made. When Gandhiji advocated the concept of Basic Education to foster self-reliance in all aspects of a healthy and balanced life — economic, physical, social, moral and cultural — of people through Basic Education, he had recognised the role of education in the overall development of our country. It was exactly for the same reason, he believed that Basic Education should be self-supporting and this self-supporting aspect of it should be an acid test of reality.

Pandit Jawaharlal Nehru's ideas on democracy, socialism, secularism, national unity and science and technology were not only unique but also they had far reaching implications for social, cultural, political and economic development. His concept of the

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role of education in development is more pronounced in the following statement :

Education has mainly two aspects, the cultural aspect which makes a person grow, and the productive aspect which makes a person do things. Both are essential. Everybody should be a producer as well as good citizen and not a sponge on another person even though the other person may be one's own husband or wife. That is the way we are developing and persons who do not wake up to this fact and prepare themselves for it will just be left behind.

(Cabinet Secretariat Implementation Committee for the Jawaharlal Nehru Centenary, 1989).

Delivering the Convocation Address at Bombay University in 1967, Dr. Zakir Husain said that to raise standard of living, to create a new social order and to develop social responsibility and to generate moral and spiritual values, "we can have no greater ally than education which is the most powerful instrument of national development." He further stressed the need to revolutionize education to trigger off cultural, economic and social revolution we need. To break the vicious circle of poverty and poor investment in education in developing countries in Asia in the absence of their ability to make larger financial investment, Dr. Zakir Husain (1968) stressed the importance of "human factor" in educational planning in the place of expenditure orientation, and obsessive statistical targets of various categories. His human factor, which he considered to be the soul of education, is to be seen in terms of good teachers, good students and good administrators and their creative role in the place of expenditure orientation, obsessive statistical targets in educational planning. Dr. Zakir Husain's human factor is same as that of Schultz's, but the reference he made is to education process itself. These ideas of the Indian educationists show that they have also been equally aware of the role of education in development.

### **The Scope and Rationale of Studying Economics of Education**

However, the focus of this paper is the rationale behind studying the subject of Economics of Education. To deal with the topic a few content areas that are generally included in the syllabus of Economics of Education are selected and the use of studying them is explained.

#### ***Relationship Between Education and Development***

One of the content areas studied in this subject is 'Education and Development'. Here development may be understood as economic, social, cultural and

political development. However, the relationship of education to economic development is more focused in the study of this area.

The positive relationship between education and economic development is no more a matter of hunch or expectation. Available evidence supports the relationship to be positive and authentic. The criteria used to understand this relationship are the following : i) the Correlational approach, ii) the Residual approach, iii) the Manpower Planning approach, and iv) the Rate of Returns approach.

The *Correlational Approach* proceeds with the positive correlation that exists between the educational indicators such as enrolment rates at different levels of education and human resources development indicators on the one hand and the economic development indicators such as per capita income, national income etc, on the other. Though it is not possible to give the results of the many studies conducted in India and abroad in respect of each of these approaches in a short article like the present one, omitting the results of at least one or two studies will make the statements made in this respect quite abstract. Hence the results of one or two studies are quoted. For example, Goel (1975, p. 23) made a study using the correlational approach to substantiate the relationship. He found enrolments at the primary level (n1), secondary level (n2) and at the university level (n3) to have been correlated with per capita income at current prices in India between 1951-52 to 1970-71 to the extent of 0.85, 0.94, and 0.95 respectively. The results of the correlational studies do indicate that education should not be taken as a casual affair or only as a consumption good. It has to be treated as an investment good that yields monetary benefits in future. In fact many researchers have argued that education is positively related to cultural, social and political development. However, the results of these studies have to be considered in the light of the lack of a perfect cause and effect relationship that exists between the education indicators and the indicators of development.

The second approach is the *Residual Approach*. "The residue is an amalgam of many varied factors, namely, education, training, R&D, public health, product mix, economies of scale and structural changes, each of which accounts for parts of the residue, according to the exponents of the model (Adiseshaiah, 1979, p. 8). Solow (1961) computed a residue equal to 87.5 per cent of the increase in output per man hour in the U.S. between 1909 and 1949. Denison (1962) found that education was the source of 23 per cent of growth of total real income and 42 per cent of the growth of real national income per person employed.

The results of the Residual approach also suggest that education contributes to economic development and hence the need to invest in education. It further suggests that the size of output increased due to the residue is rather high and hence education should get priority in terms of investment.

The third is the *Manpower Planning Approach*. The objective of manpower planning is beautifully given in the Kothari Commission Report stating that in manpower planning ...a suitably trained person would be available for every job to be done and every educated person would find a job appropriate for his education and professional training (NCERT, 1970, p. 176). The purpose of manpower planning is to plan educational systems with a view to producing the appropriate amounts and kinds of manpower. Any imbalance in the manpower produced in a country would have disastrous consequences of unemployment and hence social unrest if it is in excess; or a shortage of manpower and the consequent high rate of salaries and underutilization of resources leads to a tardy growth of economy. Using manpower forecasting techniques, optimum manpower for the terminal year is estimated and the same is produced. In our country manpower in some occupations has been produced using Manpower Planning approach. A student studying this area would get a theoretical knowledge of Manpower Planning approach. More than this he becomes conscious of the need to produce manpower based on the manpower planning strategy and develop favourable attitude to the approach.

The fourth approach is the *Rate of Returns Approach*. Rate of returns is a specific technique that comes under the general technique of cost-benefit analysis. Cost-benefit analysis is a technique where the discounted social or private costs of a level of education are compared to the discounted social or private benefits of that level of education in order to determine its profitability. Heyneman (1979, pp. 26-27) found out the average of eight social rates of return studies conducted in India for primary (16%), middle school (13.3%), matriculation (13.1%) and BA (10.3%) and Engineering (17.4%) courses. The average private rates of return for primary (19.5%), middle school (17.3%), and BA (12.2%) and Engineering courses (25%) calculated by Heyneman (1979, pp. 26-27) are much higher than the respective social rates of return. In the case of matriculation, the average private rate of return (10.4%) was lower than its average social rate of return (13.1%). The following comment made by Psacharopoulos (1981, p. 333) on the implications of difference of social and private rates of returns of higher education of 44 countries includ-

ing India sounds quite significant for education policy : "There is large difference between the private and social returns to higher education (24% versus 13% respectively) suggesting that there exists room for private finance at the university level. A shift of part of cost burden from the state to the individual and his family is not likely to lead to a disincentive of investing in higher education given the present high private profitability margin."

Rates of return point to the need for changes in resources allocation in favour of those levels of education with higher rates of return. Woodhall (1970, p. 40) gives the following uses of costs-benefit studies that include rates of return in addition to Benefit-Cost Ratio and Net Present Value of the Project analysis studies : "(a) to compare the relative profitability of education and other forms of social investment; (b) to compare the relative profitability of different types or levels of education; (c) to compare the social rate of return to education in one country with another; (d) to compare the relative profitability of education to society and to the individual, by comparing social and private rates of return to education at different points in time". According to Woodhall cost-benefit analysis studies provide 'direction signals' for investment policy.

#### *Unit Costs*

Calculation of unit costs to different course units also falls within the scope of the subject of Economics of Education and they have their specific uses for policy makers. "Unit cost of education is the sum of student inputs (input contributed by students) and institutional inputs (those contributed by institutions) per unit of output (pupil-years) as defined. Unit cost may be calculated for a unit course of study and then for an institution running several course units. Comparison of unit costs of different institutions in each area may indicate the optimum size of the institution for each region. Unit cost of the institution of optimum size may be taken as norm and efficiency of other institution(s) of the region may be assessed by comparison of unit cost of these with this norm" (Pandit, 1969, p. xiv).

#### *Educational Planning*

Educational planning is another area that the students of Economics of Education are made to study. For Philip Coombs (1970, p. 14) "Educational planning, in its broadest generic sense, is the application of rational, systematic analysis to the process of educational development with the aim of making education more effective and efficient in responding to the needs and goals of its students and society." There



are different approaches such as the Social Demand approach, the Manpower Planning approach and the Rates of Return approach that help in finalising educational plans. The latter two approaches have already been explained. The former approach, namely, Social Demand approach deals with the aggregate (popular) demand for education and it is the sum total of individual demands for education. If all persons who knock at the doors of educational institutions are provided education, the social demand for education is supposed to have been fulfilled. Resorting to this approach has its pros and cons.

Philips Coombs (1970, p. 15), briefly outlines as to how educational planning is useful in the following words : "Planning is, or should be, an integral part of the whole process of educational management, defined in the broadest sense. It can help the decision-makers at all levels — from classroom teachers to national ministers and parliaments — to make better informed decisions... Planning can help to attain larger and better aggregate results within the limits of available resources."

#### *Education and Equity*

Another important unit covered in Economics of Education is 'Education and Equity'. Equity is fairness or social justice. Equality of opportunity and equity in education are synonymously used. Equity in education can be achieved by pursuing policies of protective discrimination in favour of the disadvantaged sections of society. Public expenditure on education is regarded as an important instrument for reduction of inequality, particularly in developing countries. In general what is likely to happen is that when the number of educated persons increases, wage differences narrow down leading to redistribution of income. On the other hand if a level of education, such as higher education, is highly subsidized, it is likely to be more amenable to the rich and hence it is counter productive in respect of promoting equity. In developing countries where human capital view is accepted, public expenditure on education in such countries is widely regarded as an important instrument for reduction of inequality. An author points out that the studies conducted in this respect suggest that the investment in primary education is highly egalitarian, investment in secondary education to be on balance egalitarian and post-secondary education to be clearly pro-rich.

According to Ahluwalia (1974, p. 17) primary education was more important in explaining 40 per cent of income distribution, while secondary education was more significant in explaining the middle

of the distribution. "It has been shown that income distribution is better explained by educational distribution rather than the catchall factor of per capita income" (Psacharopoulos, 1977).

#### *The Elasticity of Demand for Education*

Education is found to be having more income elasticity as compared to other goods. Schultz found that the income elasticity of demand for education was about 3.5 over the period from 1900-1956 and alternatively education was considered as an investment that might be considered as 3.5 times more attractive than investment in physical capital [Schultz in Nelson B. Henry (ed.), 1961] : Income elasticity of demand for education was 3.75 in India and for food it was only 0.03 between 1951-1985 (Shah, 1987). Also it was found that income elasticity of expenditure by the households was much higher than by the institutions (Tilak, 1980). Parents do not invest in the education of their children just for nothing. They know that education is monetarily also beneficial to their children. The policy makers should know the pattern of this demand in order to create the facilities for education.

#### *Financing of Education*

The quantitative expansion of the educational sector and the need to meet the financial requirements of such an expansion particularly in the context of the 'resource crunch' that is being faced increasingly compels to streamline the expenditure for education for deriving maximum benefits. "The financial resources that are being poured from the public exchequers into the education system in the countries of the world are no more trivial, so that they can be kept outside the theoretical framework of public finance... As the mechanism of financing education has a significant bearing on the outcome of education, if the education system has to produce the desired results, decisions regarding its financing should be based on sound principles, rather than being derived from projections based on mechanistic trend" (Tilak, 1987, pp. 132-33). This area includes sources of educational finance, and their relative contribution, growth of plan, non-plan expenditure, at constant or current prices, intra-sectoral allocations for education and their trends, the adequacy and the inadequacy of the allocations, centre-state relations in educational finance and the evaluation of the allocations and expenditure in terms of the rational principles such as investment effectiveness or manpower requirements or national commitments for education. People these days are speaking about rational models of allocation of resources for education. In our country "no scientific criterion" is strictly being ad-

hered to in the allocations made for education. The fact is that the share of government expenditure on education has increased from 57.1% in 1950-51 to 80.0% in 1980-81, and the governments have reached a saturation point notwithstanding the "law of increasing state activity" (Tilak, 1987, p. 146). Government policies all over the world including our country highlight the need to mobilise alternative sources of educational finance. The need to foster equity considerations by financing education at lower levels and by reducing subsidization of higher education have become priority consideration in education. The achievement of these objectives is not possible without making meaningful and purposeful study of educational finances and hence they find a place in the syllabus of Economics of Education.

#### *Education — Consumption Good or Investment Good*

In Economics of Education the other unit that is covered relates to whether education is a consumption good or whether it is an investment good. Today it is agreed upon that education comes under both consumption and investment aspects. If education is a source of pleasure, satisfaction, prestige, status, it is giving consumption benefits. If on the other hand, it gives future monetary benefits such as salary, or output or income it comes under investment aspects. Lewis (1960) distinguishes the consumption and investment components of education thus : "From the standpoint of economic development one may distinguish between types of education which increase productive capacity and types which do not. Teaching an African cook to read may increase his enjoyment of life but it will not necessarily make him a better cook. Education of the former kind I have called investment education, while the latter kind is called consumption education."

However, some economists like Professor Brahmananda contend that that part of education which is essential for the purpose of production process to grow at the optimum rate is investment and that part which is in excess of the needs and requirements of the economy is consumption (Brahmananda in *Balijsi Singh*, no date, p. 26).

If education is treated as a consumption good the priority it would get would be lesser and if it is treated as an investment good it will have a higher priority in allocation of resources as that of any other investment sector which is financed on priority basis.

#### *Educational Efficiency and its Uses in Educational Planning*

Another area that comes under the scope of Economics of Education is efficiency of different educa-

tional levels. The concept of efficiency in general is used to analyse production where the process of transformation of one kind of good or service into another takes place. Efficiency has two variations — technical efficiency and economic efficiency. Any production process is said to be technically efficient if it produces the maximum output from its chosen combination of inputs or if it reduces the quantum of inputs by keeping the level of output the same. This definition of technical efficiency is also same as internal efficiency. Economic efficiency measures this relationship in terms of the money value of inputs and outputs. In education to produce output (primary school educated, secondary school educated or college educated etc), we use various inputs such as teachers, materials, buildings etc. Internal efficiency of an educational institution is to be understood in terms of what takes place within schools. It is "flow of students through the system with a minimum of waste and the quality of learning achieved in the system. Wastage in the flow of students is manifested quantitatively in the form of dropouts and repetition, while the quality of learning is determined by the inputs and outputs of the educational system (*World Bank*, 1980, p. 30).

There is another type of efficiency called external efficiency and it has two dimensions — quantitative dimension and qualitative dimension. The quantitative external efficiency of an educational system is understood in terms of the supply of the quantitative needs of manpower of an economy such as doctors, engineers, management experts etc. The qualitative aspect of external efficiency of an educational level deals with the problem whether the manpower produced by an educational system satisfies the specific requirements of the job it is intended to perform in the economy. Several research studies on the efficiency of educational levels have been done. For example Khan (1969, pp. 164-72) relatively early in India calculated Efficiency Coefficients for the General School Education System in physical and monetary terms. "External efficiency refers to what happens after a student leaves the school such as integration to the outside world, especially a labour market (*Psacharopoulos*, 1983, p. 3). If a course has employment potential it has good external efficiency. Internal efficiency is measured using cost-effectiveness techniques and external efficiency by the cost-benefit technique.

Education is treated as industry and different educational institutions have different levels of efficiencies. The need for maintaining maximum levels of efficiency for an educational level is necessary

because education has to compete with other areas of economic activity for its resources due to the scarcity of resources. Though the quantification of inputs of education is easy, the quantification and aggregation of educational outputs is difficult though not insurmountable.

#### *Use of Study of Concepts in Economics*

Commencing teaching of Economics of Education to the students offering this subject without giving them a background of the concepts of Economics will land them in difficulties. Therefore concepts such as utility, consumption and production goods, laws of demand and supply, price elasticity of demand, income elasticity of demand, difference between economic growth and economic development, laws of returns to scale, consumer's surplus, production function, constant prices versus current prices, GNP, NNP, budget, factor cost, average cost and marginal cost, opportunity cost, different types of efficiency, plan and non-plan expenditure, manpower forecasting and manpower planning techniques, equity, equality of opportunity, co-efficient of variation representation index, Lorenz curve, cost-benefit analysis and other related concepts are to be taught to these students.

#### **The Widening Scope of Economics of Education**

The subject of Economics of Education has quite a wide scope. Nevertheless its scope continues to increase for new content is being added to it. For example, due to the increase in social demand for education, educational expenditure is increasing. The governments are finding it difficult to cope with the required expenditure in this respect. Hence many governments are encouraging the alternative sources of mobilization of resources (private financing) for education. The study of the strategies of such mobilization becomes a part and parcel of the content of the subject of Economics of Education further widening its scope. Another example is that of promotion of privatization of education which has given room to commercialization of education. This phenomenon of commercialization cannot remain out of the purview of the subject of Economics of Education. Many more examples as the above two could be given to argue in favour of the statement that the scope of the subject is increasing. The subject of Economics of Education is becoming so vast that trying to define its scope or trying to write a textbook in it probably cannot be done with the required comprehensiveness.

#### *Economics of Education as a Subject in Universities*

The subject of Economics of Education appears to be in 35 Universities in their M.Ed. programmes

either with the title of Economics of Education or with the title of Educational and Financial Planning or Educational Administration and Financial Planning as per the UGC Report of the Curriculum Development Centre in Education (1989). Maybe this number has increased now, since about 10 years have lapsed from 1989. In the context of the growing scope of the subject of Economics of Education, the need for its study is becoming more and more imminent particularly for those M.Ed. students who offer Educational Administration and Management as a specialization. There can be an M.Phil programme with specialization exclusively in Economics of Education. The subject of Economics of Education is very interesting provided one has aptitude and the needed background. But without a sufficient background of this subject neither an educational administrator nor an educational planner will have the required confidence or competence in his profession. Hence the study of this subject at M.Ed/M.A. (Education) level has ample justification. It may be a full paper under the specialization of Educational Administration and Management or the different units or components of this paper may be incorporated under different subjects that come under different specializations. This subject makes the P.G. Courses in Education more need based and relevant.

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# Academic Staff Development in Higher Education An Overview

Savita Rastogi\*

The concept of a training programme for college/university teachers is rather new. A teacher in a university is required to take up full load of teaching from the first day of appointment without any orientation to different aspects of the job, viz methods of teaching, preparation of lectures, methods of evaluation, conducting workshops, seminars and understanding the youth. The enthusiastic recruit is left to learn through trial and error.

The lack of training for university teachers may be due to the traditional belief that the university teacher is supposed to have mastery of the subject and if required, can upgrade/update himself/herself through his own efforts. The lack of training for university teachers was also reported by Hena Mukherjee and Jasbir S. Singh (1993) in their world study of Staff Development Approaches in Higher Education when they observed that the main emphasis of education policies of different countries at different levels of development was on expansion, but there had not been a matching increase in resources, and this led to a deterioration in the quality of higher education.

However, by the late 70s and early 80s, policy makers started realising this deterioration brought on by rapid expansion. The teacher was recognised as the key factor for improving the quality of higher education, and the teacher development started getting due attention. As a result, a number of journals and books dealing with staff development have been brought out in recent years. Carole Bland and Constance C. Schmitz (1988) conducted an extensive literature research for a twenty-year period (1965-85). They located and categorised a total of 287 faculty development publications (books, monographs, journals, articles and technical reports) in USA, with almost half of these items published after 1980.

## Meaning and Components

The term teachers' training is often used interchangeably with academic staff development. But, whereas training is concerned with skill development and is more related to technical jobs, academic staff development is concerned with acquainting the teachers with the latest methodologies of teaching

and updating teachers' subject knowledge. It is concerned with constantly updating the teachers so that they can adapt themselves to the ever-changing teaching/learning needs and, at the same time, adopt new roles and responsibilities.

According to Tucker Allan (1984), faculty development refers to establishing activities and procedures that assist faculty members in acquiring knowledge, skills and attitudes that enable them to become more effective in performing all the functions related to professional academic life, viz teaching, research, curriculum development, information analysis, dissemination of knowledge through the mass media, advising, and counselling.

According to a UNESCO report (1988), there are three main concerns in the professional training of teachers : the inculcation of a value system that is appropriate for the teaching career; the imparting of specific new skills and knowledge; and retraining of teachers to keep up with new trends in education, through inservice education.

In fact, the concept of academic staff development is very wide and it can be defined as briefly as in one line and as long as in a number of pages. The reason being that it is used to describe many activities and encompasses a wide set of aims. It is considered as a process or intervention to bring about qualitative changes in the faculty to facilitate and improve the professional competence of individual faculty members in fulfilling their various obligations to achieve the goals and objectives of their institution.

## Need

Any profession requires initial practice and teaching is no exception. Besides the initial training, the explosion in knowledge has widened the scope of higher education during the third part of the 20th century, resulting in the recognition of the need for teachers' training in higher education world over.

D. Chupronov et al (1980) concluded that the quality of teaching is the determinant factor in the future attitude of specialists towards their work and the degree of satisfaction they find in it. The speeding up of scientific and technological progress makes the intensification of the various components of educational process all the more essential in the estab-

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lishments of higher education to maintain and improve quality. This problem cannot be tackled otherwise than by finding ways to improve the art of teaching — its forms, methods and the degree of its intensity.

A symposium (1980) held by the European Centre for Higher Education (CEPES) in Romania observed that higher education has been frequently called upon to provide continuing education to staff from various areas of socio-cultural and economic sectors. But due to the unprecedented expansion and fast obsolescence of knowledge, it has come to recognise the need for continuing training of its own personnel as well.

To summarise, it can be said that the enormous expansion of the educational system, the concern for quality and the changing role of the faculty have all led to the necessity of taking a fresh look at the programmes of faculty development.

### Types

Staff development required for teachers in higher education is of the following types :

i) *Pedagogical preparation of teachers* : Pedagogical training and retraining have emerged as important areas of staff development because of increasing pressure on instructional improvement. Reforms and innovations in higher education are unlikely to succeed unless the teachers change and develop their attitudes and abilities accordingly. Pedagogical training for teachers in higher education is not restricted to their role at the higher education level, rather it extends to the reform and functioning of the educational system as a whole. Higher educational personnel should be able to

- a) ensure the necessary linkages between higher education and education at other levels, or of non-institutionalised types;
- b) take part in the definition of educational goals, and
- c) undertake research in various educational fields.

Pedagogical training in higher education is gaining more importance because of increasing pressure for efficiency and accountability on higher education institutions.

The need for pedagogical training has become an urgent issue at a time when teaching skills are neglected by teaching staff as universities in many countries do not require any pedagogical background of their teachers, nor do they provide any incentive

to be a better teacher. One makes a name not by improving one's teaching but by undertaking research and publication work.

2) *Training or retraining in one's field or discipline to update subject knowledge* : In a world of change in which knowledge gets rapidly outdated, the dependence of teaching on research is increasing by the day. However, in a number of cases, higher education teachers have no opportunity for personal research. They should at least keep themselves aware of the advances and research in their own subjects. Besides, higher education teaching personnel have to keep themselves informed on developments in fields related to their own, if an inter-disciplinary approach in teaching, training and research is to become a normal practice in higher education.

### Evaluation : Meaning, Need and Importance

The process of planned development is said to have three aspects :

- a) Formulations of programmes;
- b) Implementation of the formulated programmes; and
- c) The evaluation of the implemented programmes.

Since in most of the countries, staff development efforts have been planned and implemented, the next aspect is their evaluation. As Peter R. Sheal (1989) observes, historically evaluation of training was not so important and the main emphasis was on developing and conducting training programmes. But now since training programmes have been developed and implemented on a large scale, more attention is being directed to evaluation as potential contributor to improving both the planning and execution of programmes and projects and to a better utilisation of resources, directing them to the target beneficiaries.

According to Harriet Talmage (1982), most of the definitions of evaluation are in terms of the purposes it serves and since there are a number of such purposes, an authoritative definition of programme evaluation remains elusive because of the lack of consensus about evaluation purposes. Three purposes appear most frequently in definitions of evaluation :

- a) To render judgement on the worth of a programme. The judgement about the worth of a programme refers to the degree to which an

education programme meets its intended outcomes and also the worth of the programme to the user. So valuing or assessing worth of a programme is at the root of the concept of evaluation. There are five evaluative questions to be raised :

- Is this thing any good?
  - What is it good for?
  - Is it better than something else?
  - Can it be made better?
  - Is it the right thing to do?
- b) To assist the decision-makers in deciding policy : This purpose of evaluation separates the role of evaluator and decision maker. The responsibility for making a judgement about a programme's worth rests with the decision-maker; the evaluator's task is to provide the decision-maker with sufficient information for arriving at the decision.
- c) To serve a political function. L.J. Cronbach et al (1990) expressed that evaluation is essentially a political activity. They describe evaluation as a novel political institution that is part of governance of social programmes. However, these purposes are not mutually exclusive and can and do occur together.

Alkin (1992) observes that programme evaluation deals with the systematic gathering of data about existing programmes in order to render value judgements about them. Separate from the topic of programme evaluation is personnel evaluation. In programme evaluation the investigator is not precluded from gathering data from personnel who participated in the programme, though the focus is not to make judgements about those personnel but to use the data in making judgements about the programme.

The term evaluation has been defined differently by different evaluators. Yet, a few evaluators would stop at the level of subjective description of the programme, and a few others would insist that evaluation efforts should be scientific. But still there are some common characteristics of the term evaluation of which two basic ones are :

- 1) To provide information for decisions about the programme; and
- 2) Evaluation results should be useful for programme improvement decisions.

## Types of Evaluation

Generally, there are three types of evaluation which can be specified, according to the areas to which they ascribe themselves :

1) *The improvement of future training programmes* : Evaluation provides information that can be used for the development of new courses, the revision of existing courses, or to eliminate inappropriate or ineffective training. This type of evaluation to improve the quality of training is often known as formative evaluation.

Formative evaluation is also known as process evaluation and is concerned with the manner in which a project or programme is implemented, especially as regards the stated guidelines and design. It is further concerned with whether or not the programme is directed at the intended target group.

2) *The assessment of the value of the training to the participants and their organisations* : This form of evaluation might be described as the monitoring of training for its job performance. It is known as summative evaluation and takes place some time after an employee has completed a training programme. It is also known as impact or outcome evaluation and is concerned with measuring the extent to which a programme produces a desired change.

3) *A holistic approach to evaluation* : It includes both a process and impact evaluation and is the best for evaluations to include both types as they complement and support each other. To summarise, the capabilities of programme evaluation can be described as under :

- to contribute to decisions about programme installation;
- to contribute to decisions about programme continuation, expansion or certification;
- to obtain evidence to rally support for a programme;
- to obtain evidence to rally opposition to a programme;
- to contribute to the understanding of basic psychological, social, and other processes.

## Difficulties/Limitations in Evaluation

Lieberman (1992) observes that despite millions of dollars spent on providing opportunities for teachers to improve curricula, foster better relationships

and promote the learning of students, significant changes in professional development have not occurred and the concept of professional development of teachers continues to be obvious, on the one hand, and elusive, on the other.

To quote Ediger Marlow (1994) : "As a skeptic in Ancient Athens, Gorgias is said to have stated that nothing could be known. If something could be known, it could not be communicated. If it could be communicated, it would not be understood. Drawing a corollary, attempting to determine how much has been learnt by the participants of a course, appears to be baffling, indeed if it can be done in spite of many ways of testing it."

### Summary

Traditionally, the concept of academic staff development in higher education was not given due attention. Recently, there is increased emphasis on this aspect the world over. Different countries have started providing for it in different ways. However, the universities all over the world are entering an era characterised by enforced retrenchment. In many universities, staff development is seen as a peripheral activity because its impact is difficult to assess. At a time when financial pressure is severe, staff development is a prime target for obliteration. The questions to be asked are :

1. Is the function which is being carried out essential? Or, if not, is it valuable enough to justify the time and money spent on it?
2. If the answer is that the function is either essential or sufficiently valuable, is it best carried out by the body in question rather than by another means?
3. Is it being carried out well and economically?

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## Calendar of Events

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary / Officer to be contacted
Nov. 14-16 1998	International Conference on Woman and Child	Theme : Health, Empowerment, Rights and Development	Pravara Medical Trust, Loni (Dist. Ahmednagar)	Dr N.S. Mhaske, Organising Secretary, C/o Pravara Medical Trust, Loni-413 736 Dist. Ahmednagar (Maharashtra)
Jan. 29-31 1999	International Conference on Education	Theme : Educational Culture in the 21st Century : Knowledge, Teacher & Technology	All India Association for Educational Technology, Deptt of Education, Govt. of Assam	Sh. K.M. Baharul Islam, Conference Secretary, Centre for Educational Technology, REC Silchar-788 010 (Assam) India

# SPREAD SHEET

## Student Mobility

### REGIONAL ORIGIN OF COMMONWEALTH STUDENTS

Hosted by Australia, Britain, Canada, India and New Zealand, 1995

Region	Principal Commonwealth Host Countries of origin									
	Australia		Britain		Canada		India		New Zealand	
	No	%	No	%	No	%	No	%	No	%
Australia	289	27.9	14	5.4	28.9	27.9				
Hong Kong	9.9	28.0	5.3	11.7	5.1	29.4	n.s.	n.s.	0.3	9.4
Malaysia	14.4	13.5	4.4	10.0	4.1	10.0	1.5	0.1	4.2	8.0
Brunei	n.s.	n.s.	0.8	1.9	0.0	0.1	n.s.	n.s.	0.0	0.4
South Asia	12.2	12.4	4.4	10.0	4.1	10.0	1.5	0.1	4.2	8.0
Australasia/Pacific	n.s.	n.s.	1.0	2.3	0.4	2.5	n.s.	n.s.	0.6	19.3
Asia	13.9	13.0	4.4	10.0	4.1	10.0	1.5	0.1	4.2	8.0
Caribbean	n.s.	n.s.	0.9	2.1	1.3	7.4	0.0	0.1	0.0	0.5
Europe/Cyprus	0.5	1.3	2.7	6.1	2.1	12.0	0.0	0.1	0.1	1.7
Unspecified	2.5	7.1	-	-	n.s.	n.s.	0.1	1.7	n.s.	n.s.
Total	289	27.9	14	5.4	28.9	27.9	14	5.4	28.9	27.9

N.s. not significant

### GROWTH IN STUDENTS FROM ABROAD

Principal Commonwealth host countries (percentage increase)

Host countries	1978-95	1976-95	1980-95	1993-95
Commonwealth students				
Australia	207.5	587.9	117.2	25.1
Britain	15.1	8.6	38.4	28.2
Canada	27.2	4.4	24.9	24.2
India	n.s.	n.s.	20.6	33.2
New Zealand	-8.3	81.3	93.3	0.0
Total	169.9	787.7	286.4	110.5

Non-Commonwealth students				
Australia	1100.0	3800.0	225.0	32.5
Britain	118.0	118.0	118.0	118.0
Canada	125.7	142.5	1.4	11.6
India	22.7	22.7	22.7	22.7
New Zealand	368.7	600.0	50.0	-8.7

All students from abroad				
Australia	311.7	945.0	153.8	28.2
Britain	133.1	133.1	133.1	133.1
Canada	74.6	68.3	4.8	-2.2
India	22.7	22.7	22.7	22.7
New Zealand	52.8	113.2	72.4	-3.8
Total	584.8	1882.3	386.8	65.5

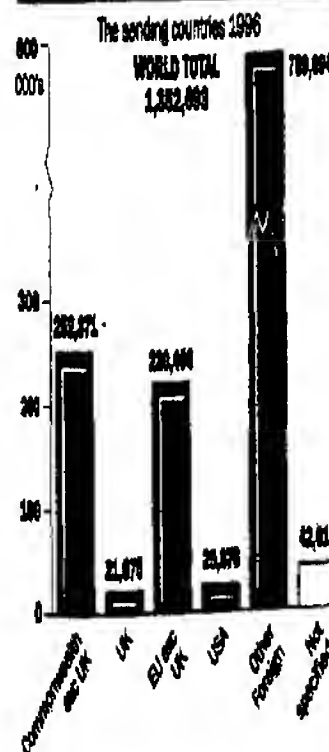
### MAJOR COMMONWEALTH HOST COUNTRIES

Commonwealth and other students from abroad 1978-1995

	Level	Commonwealth students (000's)					All students from abroad (000's)				
		1978	1980	1982	1984	1985	1978	1980	1982	1984	1985
		HE	PS	HE	PS	HE	HE	PS	HE	PS	HE
Australia	HE	15.1	16.3	28.3	30.5	35.4	8	24.7	48.9	54.5	62.7
	PS	44.9	34.3	38.1	41.1	47.8*	88.2	84.6	113.1	136.9	154.7
Britain	HE	15.1	16.3	28.3	30.5	35.4	8	24.7	48.9	54.5	62.7
	PS	44.9	34.3	38.1	41.1	47.8*	88.2	84.6	113.1	136.9	154.7
Canada	HE	15.1	16.3	28.3	30.5	35.4	8	24.7	48.9	54.5	62.7
	PS	18	22.9	22.7	19.4	17.2	34.7	60.6	59	54.7	57.7
New Zealand	HE	15.1	16.3	28.3	30.5	35.4	8	24.7	48.9	54.5	62.7
	PS	1.6	1.5	2.9	2.2	2.9	1.9	2.9	5.2	4.1	5
India	HE	15.1	16.3	28.3	30.5	35.4	8	24.7	48.9	54.5	62.7
	PS	15.1	16.3	28.3	30.5	35.4	8	24.7	48.9	54.5	62.7
TOTAL		15.1	16.3	28.3	30.5	35.4	8	24.7	48.9	54.5	62.7

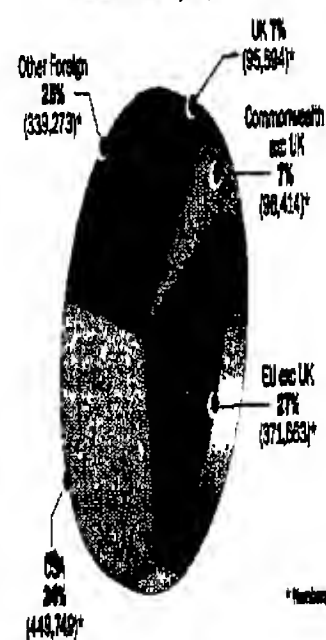
HE Higher education: University and equivalent / PS Post-secondary education, including higher education. \* estimates

### STUDENTS ABROAD



### GLOBAL STUDENT MOBILITY 1996

The host countries  
WORLD TOTAL 1,382,000\*



Source: Times Higher Education Supplement, 14 August 1998.



# Managerial Behaviours of Effective Teachers

Cima M. Yeole\*

## Introduction

The educational system today is student-centered. Yet the teacher has the central pivotal role in designing the learning system and in deciding the alternatives for effective communication.

Good teaching requires a sympathetic sharing and a clear expression and explanation of ideas for achieving specific outcomes. Teachers help students to learn information, acquire values and develop attitudes.

For the proper functioning of democracy and for the socio-economic advancement of the country, the importance of proper education has been emphasized. Various education commissions have been set up to up-date the system of education. The efficiency of the people dispensing education — 'the teachers' — has come in for a lot of criticism in recent times and it is this that has motivated several researchers in the field of teacher education to study the phenomena of teacher effectiveness.

A teacher is effective to the extent he/she acts in ways that are conducive to the development of basic skills and understanding, work habits, desirable attitudes, value judgements and adequate personal adjustment of students (Ryons D.G., 1960). Teacher effectiveness refers to the results a teacher gets or to the amount of progress that the pupils make towards some specified goal of education. It is regarded not as a stable characteristic of the teacher as an individual but as a product of the interaction between certain teacher characteristics and other factors that vary according to the situation in which the teacher works. Teacher effectiveness is defined in terms of what the teachers' pupils do. Teacher performance is often used as a basis from which teacher effectiveness can be inferred.

Good teachers are effective communicators. What then are the managerial behaviours peculiar to these effective communicators? As educators, it is essential to know more about the managerial behaviours of teachers.

Fuller and Brown (1975) have identified three dis-

tinct stages in the complex, stressful and intimate process of becoming a teacher — (i) A survival stage, (ii) A mastery stage, and (iii) A burn-out stage. The first stage is the most important stage characterized by survival concern about one's adequacy, class control, being liked by pupils, being evaluated and about success and failure as a teacher. No other aspects of teaching are cited as major concerns by teachers as is the classroom management. Experienced teachers mention it is as a major problem, and administrators and parents stress it in evaluating teacher competency.

## Classroom Management

Classroom management includes the study of teacher behaviour and activities that are primarily intended to foster students' cooperation and involvement in classroom tasks (Emmer E.T., 1987). The concept spans a very broad range of activities encompassing such things as arranging the physical setting, establishing and maintaining classroom procedures, monitoring pupil behaviour, dealing with deviant behaviour, keeping students accountable for work and conducting lessons that keep students on task. In addition to their broad scope, management behaviours are central to teaching role, usually regarded as necessary for the achievement of classroom goals and tasks.

Classroom management is a complex phenomenon; it constitutes the provisions and procedures necessary to establish and maintain an environment in which instruction and learning occur — it is the process of creating conditions favourable to the engagement of students in classroom activities.

Thus the classroom management process is purposeful; i.e. the teacher uses various managerial strategies in order to achieve a well defined and clearly identified purpose, he establishes and maintains conditions which facilitate effective and efficient instruction in his/her students.

Classroom management has been a neglected concern in education when compared with recent innovations in curriculum and instruction. Lack of development in the area of classroom management has been the result of several factors including inability to deal with the concept, students' behaviour in the

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classroom organisation, the lack of conceptual tools and the inclusion of this area as a part of the instructional practice.

Classroom management functions fall into two major categories involving (i) facilitating, and (ii) maintaining the classroom group. These managerial activities serve to prevent some behaviour from arising. Understanding is needed of the nature of facilitative and maintenance activities.

Facilitation literally means to assist, help, promote and improve conditions within the classroom group. The performance of facilitative activity require teachers to be able to analyse the social situation, make decisions and initiate appropriate action.

Maintenance can be described as a process of resolving conflict, restoring morale and harmonizing conditions when outside influences create disturbances in group functioning.

A search of literature on classroom management reveals different philosophical positions and varied operational approaches derived from them :

- (i) *The Authoritarian Approach*—wherein the teacher controls students behaviour by using some of the following managerial strategies — establishing and enforcing rules, issuing commands or orders, using mild de-sists, using proximity control, isolation and exclusion
- (ii) *The Behaviour Modification Approach* : The teacher uses certain behaviour modification strategies like using positive or negative reinforcement, punishment, praise, encouragement, self monitoring, using cues, prompts or signals, etc.
- (iii) *The Cook Book Approach* : The teacher follows simplistic 'Dos' and 'Don'ts.'
- (iv) *The Group Process Approach* : It is based on socio-psychological principles wherein the teacher uses some of the following strategies — exhibiting withitness on overlapping behaviour, maintaining group focus, sharing leadership, developing cooperation, fostering group cohesiveness, involving students in decision making, role playing, resolving conflicts through discussions and negotiations etc.
- (v) *The Instructional Approach* : It is based on the contention that carefully designed and implemented instruction prevents most managerial problems which the teacher accom-

plishes by providing interesting, relevant instruction, establishing classroom routines, giving clear directions, utilising interest boosting, planning for environmental changes, restructuring the situation, etc.

- (vi) *The Intimidation Approach* : The teacher compels the students to behave as he wishes out of sense of fear by utilising hard reprimands, use of threat, physical restraint or corporal punishment.
- (vii) *The Permissive Approach* : The teacher maximizes students freedom with least interference exhibiting socially acceptable behaviours.
- (viii) *The Socio-emotional Climate Approach* : It is based on the principle of clinical and counselling psychology where the teacher should foster positive inter-personal relationships, communicate genuineness and empathic understanding, exhibit active listening, utilize logical consequences, or reality therapy.

The classroom management approaches mentioned above utilise a number of strategies which the teacher will need to master so that student learning takes place in a conducive atmosphere.

### Managerial Behaviours

The term 'Behaviour' refers to all overt and covert acts, including speaking, writing and computing as well as non-verbal movements.

Classroom management includes the set of teacher behaviours and activities that are primarily intended to foster students' cooperation and involvement in the classroom tasks. The concept spans a very broad range of activities. Encompassing such things as arranging the physical setting, establishing and maintaining classroom procedures, monitoring pupil behaviour, dealing with deviant behaviour, keeping students accountable for work and conducting lessons that keep students active towards the teaching role — are all necessary for the achievement of classroom goals and tasks.

Two major types of activities form the core of the teachers management skill. First, the teacher must establish standards for behaviour that discourage, disruption or atleast keep the levels of such behaviour very low. However, preventing disruption is not sufficient condition to engage and maintain students in classroom activity — thus a second area of management competencies encompasses skills relevant to the maintenance of lesson and activity flow.

Kulkarni V.G. (1995) has identified the following 5 Maintenance Skills —

- (i) Careful Monitoring — when teachers observe classroom events carefully;
- (ii) Prompt and appropriate handling of inappropriate behaviour;
- (iii) Use of reward system, penalties and other consequences;
- (iv) Establish accountability for assignment completion; and
- (v) Maintaining lesson or activity flow.

### A Study

A study was conducted (Deshpande U.R. and Yeole C.M., 1997) on 13 Marathi method teacher communicators from the 13 B.Ed. Colleges in Kolhapur district, affiliated to the Shivaji University, Kolhapur, Maharashtra, wherein, the Marathi method student-teachers were interviewed and the standardised Lecturers Evaluation Questionnaire (LEQ) was administered to them to identify the Effective from the Non-Effective Communicators.

The standardized Teacher's Classroom Managerial Behaviour Scale (TCMBS — Kulkarni V.G., 1995 — with reliability coefficient ranging between 0.41 to 0.87) was also administered. The TCMBS consists of the 16 factors of Teacher Managerial Behaviour (Appendix A). These were rated by 32 items (2 for each factor) on a 3 point rating scale. 9 of the Teacher Managerial Behaviour factors are Positive and 5 are Negative. The data was analysed using the Chi Square ( $\chi^2$ ) Test, and based on the identified factors the profile of the Effective Marathi Method Teacher Communicator was mapped out.

Table 1 lists the factors present and those not present only in the Effective — Marathi method teacher-educators (the study is restricted only to the effective teacher communicators).

Table 1 : Managerial Behaviour Factors

Profile of Marathi Method Effective Teacher Communicators			
Sr. No.	Factors Present	Sr. No.	Factors Absent
1	General lecturing competencies	1	Teacher's non-soliciting behaviour and reaction
2	Alert instructive momentum	2	Controlled Smoothness
3	Black Board work for organised content pacing	3	Non-smooth withutness
4	Teacher's socio emotional permissiveness	4	Linguistic competency deficiency
5	Timely use of non-verbal media	5	Teacher's purposive physical movement

6. Strict content building tendency	6. Lack of acceptable mastery
7. Teacher's status maintenance	7. Teaching flow management deficiency
8. Withut alertness	
9. Modulating gestures and speech	

From Table 1 the profile of the effective Marathi method teacher communicators from the B.Ed. Colleges can be inferred — they are found to possess 9 out of the 11 positive managerial behaviours. The remaining 2 i.e. Controlled Smoothness and Teachers' Purposive Physical Movement are absent. The 5 negative factors are also found to be absent.

### Implications, Conclusions and Suggestions

In order to facilitate becoming successful teachers, providing the needed environment and relevant setting is of paramount importance. The teacher training programme should be reviewed with the demand for and inclusion of the classroom management component for grooming effective teachers keeping in mind the requirements of each subject/method.

Some measures suggested for improving classroom managerial behaviour of teachers for teaching effectiveness are —

1. Providing social reinforcers, and effective reinforcers (like increased salaries, prizes, incentives etc.) to teachers with efficient managerial behaviours;
2. Providing teachers with creative training experiences, fostering techniques which will make them effective and improve their managerial behaviours;
3. Avoiding ridicule, sarcasm, threats in classroom, these are deterrents to effectiveness;
4. Self assessment inventories provide personal orientation to teachers about their drawbacks and provide incentives for improvements; and
5. Attending inservice and refresher courses in demonstration of teaching and managerial skills, models, filmed portrayals can produce significant improvement in teachers.

These are but a few suggested measures for improving classroom managerial behaviour of teachers for their effectiveness in the classroom setting.

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#### Appendix 'A'

List of 16 managerial behaviour factors included in the TCMBS

1. General lecturing competencies. (Positive)
2. Alert instructive momentum. (Positive)
3. Black Board work for organised content pacing. (Positive)
4. Teacher's non-soliciting behaviour and reacting. (Negative)
5. Controlled smoothness. (Positive)
6. Non-smooth withitness. (Negative)
7. Teachers socio-emotional permissiveness. (Positive)
8. Linguistic competency deficiency. (Negative)
9. Timely use of non-verbal media. (Positive)
10. Strict content building tendency. (Positive)
11. Teacher's status maintenance. (Positive)
12. Teacher's purposive physical movement. (Positive)
13. Lack of acceptable mastery. (Negative)
14. Withit alertness. (Positive)
15. Modulating gestures and speech. (Positive)
16. Teaching flow management deficiency. (Negative)

(Contd. from page 13)

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## CAMPUS NEWS

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### Women Scientists Conference

There was a need to widen the education base by providing women the option of choosing science along with technology for better career prospects. Speaking at the conclusion of the second International Conference of Women in Science held in Mumbai recently, the scientists said the government should chalk out a plan to restructure women's education based on socio-economic and developmental needs of the changing society. The conference was organised by the Indian Women Scientists Association.

A senior scientist, Dr. Suseela said there was a need for co-ordination between the policy makers at the government level and the implementation agencies at the grassroot level to motivate women to take up new career options and to venture into various fields as entrepreneurs.

Referring to the changing trends in career, she said in the last four years more and more women scientists were entering into the business of pharmaceuticals, biotechnology, herbal medicines and cosmetics.

Women were also marching into hitherto male bastions such as physics, metallurgy, mathematics, nuclear fuel and engineering technology, said the women scientists of the Bhabha Atomic Research Centre.

Speaking on the occasion, Dr. Suchitra Singh, from the University of Durban, South Africa said the major concern in South Africa currently was the under-representation of women in research and academics.

Although it had become clear to South African women that to empower themselves, knowledge of Science and Maths was very essential, "somewhere down the career, they come to a point where they deny themselves the knowledge by saying that they were meant for intelligent people and Maths was a masculine subject," she lamented.

A recent survey showed how women's oppression in South Africa, mediated by ethnicity, class and race resulted in under representation of women in the area of Science, Dr. Singh said.

However, according to the participants, Indian women scientists preferred career models that recognised their commitment to family responsibility along with the service to the society.

"To achieve success in science, women have to overcome the discouraging environment and archaic attitudes," they concluded.

### YCMOU Allies with Datapro

The Yashwantrao Chavan Maharashtra Open University (YCMOU) has executed MoU with Datapro for an academic alliance to run its computer courses.

Mr. Anil Deshmukh, the Minister of School, Higher and Technical Education inaugurated the launching of the alliance. Speaking on the occasion he pointed out that the step of the university was in tune with the policy of the state government, which looked forward to ensure paperless offices in the state by virtue of optimum utilization of information technology.

Prin. Ashok Pradhan stated that the aim was to make this university a Mass Varsity by reaching doorsteps of the grassroots level. Not only the education in Humanities and Commerce, but the university was committed to provide technical and professional education to the masses which would prove to be useful in overcoming problems like unemployment. He also focused on the academic alliance with Datapro clarifying that this alliance was for the high tech computer courses which included extensive practical and more counselling. As far as the other courses in computer science were concerned, the university had established over 400 study centres in the state, he added.

### Suicides Among Cotton Farmers in AP

A one-day national seminar on "Suicides among cotton farmers in Andhra Pradesh" was recently organised jointly by the Department of Cooperation and Applied Economics and School of Economics, Andhra University, under the auspices of the NABARD. The seminar deliberated on the causes leading to the recent suicides by cotton farmers in Andhra Pradesh. It was divided into two technical sessions and a plenary session.

A unique feature of the seminar was the multi-disciplinary participation and interaction of experts such as economists, sociologists, psychologists, agricultural scientists, botanists, farmers and officers from NABARD and State Bank of India.

Prof. R. Radhakrishna, Vice-Chancellor, Andhra University, who presided over the inaugural

session, reviewed the alternative perspectives of the incidents and disputed the hypothesis that the suicides were the natural corollaries of globalisation and liberalisation. He attributed the suicides to rising input costs and increasing uncertainty in production on the one hand and the small farmers' temptations to take risks, despite many odds, and their inability to cope up with the negative results, on the other.

Prof. Ch. Hanumantha Rao, former member of the Planning Commission, in his inaugural address, observed that the small farmer participation in Green Revolution with credit and extension support from the government had no incidence of suicides. Similarly, cotton cultivation between the fifties and the mid eighties had not witnessed any suicides. He too attributed the unfortunate tendency of cotton growers to resort to suicides to disparity between their willingness to bear risks and their capacity to bear risks. He further observed that farmers were caught unaware of the crop failure during 1997-98 and suggested that efforts should be made to reduce input costs and to strengthen farmers to withstand competition in the market economy. In this context, he referred to the fact that allocation for agricultural research was a mere 0.5 per cent of G.D.P. from agriculture and that even this meagre allocation would be first casualty in the efforts to reduce fiscal deficit. He opined that under the cover of liberalisation the state was abdicating its responsibilities, as reflected in the declining proportion of institutional credit to agriculture from around 18 per cent in 1980s to around 11 per cent in the late 1990s. He highlighted the urgency in revamping credit institutions and delivery system by involving borrowers as participants. Under the current

situation, the farmers alone bore the entire loss and measures to shift atleast a part of the risk to intermediaries like input dealers, should be thought of. Crop insurance may be an answer to this, and a seminar on crop insurance will be timely. Though crop insurance would help farmers withstand crop failure, in the agriculture sector ridden with many uncertainties, small premium would not be feasible. For, if the crops failed, they failed in the whole region. Crop insurance would be effective if 10 to 15 per cent of the output was fixed as the premium. Then even in a bad year, the farmer could recover at least 50 per cent of the loss.

Prof. Rao said that the farmers were driven to take the extreme step because of large uncertainties, which could be cut if the government made available institutional loans and know-how. He said taking risk should not be the farmers' concern alone, but shared by all those having a stake in the profits.

Prof. G. Parthasarathy, Director, Institute of Development and Planning Studies, in his presentation at the inaugural session, correlated the suicides to reasons such as growing sickness in the society, decline of joint family system and others. Prof. B. Sarveswara Rao, former Vice-Chancellor of Nagarjuna University, said that the suicides appeared to be impulsive and exposed their total lack of confidence in the society and the government that they would come to their rescue.

The first technical session focused on the results of the study conducted by the NABARD Chair Unit in Warangal and Guntur districts during July 1998. Prof. Parthasarathy chaired the session. The study confirmed through macro and micro-level evidence that the marginal and small farm-

ers entered the arena of high risk commercial farming in the hope of salvaging themselves. This they were venturing under an unenviable environment of inadequate resource endowment, inadequate and eroding institutional support, inputs and marketing on the one hand and unresponsive extension network and machinations of exploiters in all markets on the other. The cyclical nature of farming, with occasional blessings, kindred the hopes of adventurism towards risk taking. The survey also indicated that institutional support in its varied forms and provision of services and know-how could help in diluting the intensity of crisis, while their absence aggravated the problem.

The second technical session chaired by Prof. M. Jagadeswara Rao, Dean, Academic Affairs, Andhra University, took up for discussion individual papers and oral presentations. The plenary session was chaired by Dr. Velamanchili Shivaji, former member of Rajya Sabha.

The following recommendations were made at the Seminar:

1) Suicides should be treated on par with natural calamities and a social support networking system should be evolved to decrease the distress level and to cope up with the misery;

2) The declining trends in agricultural production witnessed in most major crops during 1980-98 and declining areas under food crops should be arrested. The cotton exports should be kept under OGL to help ensure higher prices for cotton growers;

3) Adequate supply of eco-friendly biopesticides and technical know-how in their use should be ensured to farmers;

4) Given the liberalisation,

decline in the joint family system and farmers' persistence to grow cotton, measures should be evolved to reduce avoidable risks and uncertainties through institutional credit support, and strengthening of extension and marketing structures; and

5) The existing Acts should be thoroughly revamped with deterrent punishment for the culprits, to arrest the menace of spurious seeds and pesticides.

### **Seminar on Stress Management**

Rosary College of Commerce & Arts, Navelim, Goa, conducted a seminar on Stress Management. Inaugurating the seminar the Vice Chancellor of Goa University, Prof. B.S. Sonde, expressed the hope that the deliberations of the seminar ultimately filter down from teachers to students and thereby to the family at large. Focusing on the stress and strain of adolescence, he emphasized the need to analyze different stressors and the personality make-up and to suggest viable methods for youngsters to deal with their stress.

Principal Newman Fernandes, Head of the Dept. of Psychology in his keynote address spoke of the need to control the stress level before it crossed its threshold. He clarified that to enjoy life we needed to feel stimulated and hence some stress was good for us. One could not wait till the adverse effects of stress occur but one should learn to read the early warnings, he added. He said that losing humour was one of the early signs as well as, small irritations, overreacting and hypersensitivity to criticism.

The seminar made an attempt to cover the major aspects of stress in the family, in the educational set-up and in the job arena. Dr. Jose Pinto, a Resident Medical Officer

at the Institute of Psychiatry and Human Behaviour, Panjim presented a paper on "Stress in the Family and its Management". He stated that the causes of stress were frustration, conflict and pressures arising out of the demands of the environment, society, physiological changes and our own cognitive set-up. Stress had a three fold impact it affected us physically, socially and psychologically.

To cope with stressful situations, one should understand the symptoms of stress which could be used as 'Servicing Tools'. Physical and mental exercises also helped in reducing stress. One should also modulate food and sleep habits to reduce stressful situations. He also stated that one of the best methods of coping with stress would be adopting community activities and taking up hobbies which went a long way in helping the individual relax.

Mrs. Wendy Manuel, a lecturer in Psychology at Dhempe College, Panjim, presented a paper covering stress in the educational set-up and its management, thus providing an insight into educational problems. She highlighted problems at different levels and emphasized that the application of psychology in education would go a long way in reducing stress in the educational set-up. A workshop was then held, wherein the participants were divided into four groups each discussing educational problems at different stages. The first group concentrated on stress at the pre-school and school levels. Group two focused on the effects of pressure on the students. Group three discussed the stress faced by students forced into professional courses. Group four discussed and highlighted problems faced by students in the general streams. The

workshop concluded with a presentation on how to cope with stressful situations. She stated that we should adopt simple techniques such as "change yourself before you change others", "manufacture good thoughts only", "set attainable goals", "love what you do for a living and develop a positive attitude".

Mr. K.S. Rao, a Management Consultant, presented a paper on "stress in the job front and its management". Mr. Rao pointed out that stress was an unavoidable problem in the modern world, caused by job demands. He stated that the main causes of stress at the work place were fear of failure, unrealistic expectations, lack of goals and conflict in values.

The seminar threw light on the role of one's perception in deciphering the warning signs of stress. Among the ways to manage stress broadly outlined were building up one's own stress tolerance, building close friendships with people you find supportive, improving physical fitness and minimizing fatigue, setting realistic goals, and cultivating a more confident and flexible approach, meditation, diary keeping and discovering new opportunities that offer avenues for success.

### **National Seminar on Distance Education**

A National Seminar on Quality Assurance in Distance Higher Education is proposed to be held in New Delhi on November 17-19, 1998. Jointly organised by the Distance Education Council (IGNOU), School of Correspondence Courses and Continuing Education (University of Delhi) and Association of Indian Universities (AIU), the three-day seminar will focus attention on several aspects relating to managerial and administrative functions, and as-



insurance of quality of education imparted through distance mode.

The themes of the seminar are (i) Quality Assurance Procedures in Distance Education; (ii) Print Media/Multi-media in Distance Education; (iii) Managerial Aspects of Distance Education; (iv) Professional Education through Distance Mode; (v) Technological

Development and Distance Education; and (vi) Distance Education — A Critical Appraisal.

Further details may be obtained from Dr. R.K. Anand, Principal, School of Correspondence Courses, University of Delhi, Delhi-110 007 Or Dr. Veena Bhalla, Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110 002.

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## ***News from Agricultural Universities***

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### **Faculty Development in Extension Management**

The extension educationists expressed concern over the alarming knowledge-practice gap in agriculture in the country. Speaking at the 4-week faculty development programme in extension management held at CCS Haryana Agricultural University, these experts estimated that about 70 per cent of the farm technologies available in India had not yet been adopted by the farmers which was an indicator of poor managerial skills of the extension workers.

Dr(Mrs) Achla Malaviya, Dean of the Home Science College of the University, in her inaugural address, stressed the management aspect of extension education in the state agricultural universities (SAUs). She said the mission of SAUs was the development of rural community which could never be achieved fully pending inadequate and ineffective extension system. She said both efficient management and effective leadership were crucial for extension management.

Dr. R.S. Narwal, Course Director, said that despite significant advances in agricultural research and their transmission to potential users, a wide gap existed between potentials of researches demonstrated on experimental farms and

actual outcome at the farmers level. He said hardly 30 per cent of the technology had yet percolated to the farming community, which was a matter of grave concern. He said to achieve desired outcome need based, problems oriented extension programmes and projects needed to be formulated.

Speaking on the occasion, Dr. A.S. Khanna, Course Co-ordinator, said that the course had been designed to equip the teachers in extension services with skills in extension management techniques for better job performance. The participants, he said, were also exposed to developments, in communication, agricultural information system, extension system, extension methods and approaches.

Organised by the Academy of Agricultural Research and Education Management (AAREM), the course was attended by 30 extension managers and teachers from SAUs and ICAR institutes.

### **Farm Technology Project**

The Minister of State for Agriculture, Mr. Som Pal, dedicated the Rs. 900 crore National Agricultural Technology Project (NATP) to the "Indian farmers" with a firm belief that it would pave way for

doubling the farm production by the year 2010.

The project, jointly taken up by the Union Government's Department of Agriculture and the Indian Council for Agricultural Research (ICAR) with a \$97 millions loan from the World Bank and matching funds from the Government, aims at stepping up farm productivity and production from less-endowed areas.

Mr. Som Pal said the NATP would reorient the entire farm research and extension systems in the country to address farmers' site-specific needs and requirements. Basically a technology development and farm extension scheme, it would also harness all institutional facilities for stepping up farm production in all available farming areas.

It would promote multi-disciplinary, location-specific and participatory modes of operation, with major emphasis on responding to the needs of farmers, producers and entrepreneurs. The needs of small farmers and farm women would be given special attention, he added.

Dr. R.S. Paroda, Director-General of ICAR, said an Agricultural Technology Management Agency (ATMA) would be created in each of the 24 pilot districts of the six States of Andhra Pradesh, Bihar, Himachal Pradesh, Maharashtra, Orissa and Punjab where the project would be taken up initially.

The ATMA unit would function as a registered society of farmers and project implementing personnel to ensure participatory management by actual cultivators, he pointed out.

Dr. Paroda said the project would be implemented in a "bottom-up" mode rather than the "top-down" approach to farm extension adopted earlier.



## News from UGC

### Countrywide Classroom Programme

Between 8th and 14th November, 1998 the following schedule of telecast on higher education through INSAT-1D under the auspices of the University Grants Commission will be observed. The programmes are telecast on the Doordarshan's National Network from 7.15 to 8.00 a.m. every day except on Saturdays & Sundays. These programmes are also telecast on Doordarshan's National Network from 6.00 to 7.00 a.m. two days a week i.e. on Saturdays and Sundays. On DD2 International Programme will be shown at 11.00 to 12.00 hours on Saturdays only.

Hindi Programmes are being telecast on Mondays to Fridays from 6.00 to 6.30 a.m.

**8.11.98**

"Odissi : The Art of Expression-3 Pallavi & Moksha"  
"Form & Idea-2"

**9.11.98**

"Bubbles and their Physics"  
"New Technologies in Printing"

**10.11.98**

"Sacred Groves : The Rare Island of Greenery 17'10" "  
"Vedanthangal Winter Heaven for Birds"

**11.11.98**

"Tupis Nanas"  
"The Story Inside the Shell"  
"Moving into the Audible"

**12.11.98**

"Question Time-87"  
"Human Rights — Give us back our Childhood"

**13.11.98**

"The Art of Khatamband"

"Chronicles of Postage Stamp"

**14.11.98**

"Indian Women : From Rhetoric to Reality — Women & Media-4"  
"Speak the Speech-1"  
"Carrot Weeds"  
"International Programmes"

#### Hindi Telecast

प्रातः 6.00 से 6.30 बजे तक

**2.11.98**

"दो तीन का नियम : भाग-1"

"दूब साइट : भाग-1"

**10.11.98**

"दो तीन का नियम : भाग-2"  
"मालवा के सिक्के"

**11.11.98**

"दो तीन का नियम : भाग-3"  
"उन्नत स्वास्थ्य की ओर (मक्खी नियंत्रण)"

**12.11.98**

"प्रकाश का बिखरना — टिडल रैली व क्रॉम्पटन इफेक्ट"  
"बिखुरी पंखुड़ियां भाग-1"

**13.11.98**

"प्रकाश का बिखरना : रमन प्रभाव"  
"जामुन"

## News from Abroad

### Commonwealth Varsities Student Congress

A small group from the University of British Columbia is planning a Commonwealth conference for students to be held next year in Vancouver.

The Commonwealth Universities' Student Congress will try to bring together 200 students to discuss human rights, sustainable development and other issues facing Commonwealth countries.

Organisers hope the conference, which is set for August 1999, will become a biennial event. It will try to match the diversity of the ACU conference with representatives from all 54 member countries of the Commonwealth.

Organiser Christopher Gorman began last year to work on the idea of an international gathering of students. "We would like to make a serious input on issues," said Mr. Gorman. Mr.

Gorman, a 22-year-old political science student, expects it will cost £ 270,000 to set up the congress. He has been seeking sponsorship and support from Canada and abroad. His university has given the congress an office, some equipment and support from its president, and Canada's Department of Foreign Affairs and International Trade has provided some seed money.

The project, which is being run by 11 student volunteers, is a collaboration with the Commonwealth of Learning, the Vancouver-based distance education organisation, and the local branch of the Royal Commonwealth Society. The Association of Commonwealth Universities has also promised support.

Mr. Gorman can be reached at [gorman@unixg.ubc.ca](mailto:gorman@unixg.ubc.ca)

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## BOOK REVIEW

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### Teacher Education from a Futuristic Perspective

D. Raja Ganesan\*

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R.P. Singh. *Teacher Training in India : Looking Ahead. Federation of Managements of Educational Institutions, A-4, Ring Road, N.D.S.E., Part-I, New Delhi-110 049, 1997. Pp. viii+175. Rs. 350/-.*

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Edited by R.P. Singh, at once a critic and champion of Teacher Education in India, this book consists of contributions to various aspects of Teacher Education from a futuristic perspective.

The foreword by Prof. A.K. Sharma, Director of NCERT, calls for fresh thrust towards indigenisation of Teacher Education in terms of duration and methodology. In his preface, R.P. Singh points out that education is forced to adopt itself to changes on pain of becoming extinct. He highlights that mere legislation is not enough for ushering in normative social change and education is indispensable in this regard. Singh has identified the historical roots and contemporary dilemmas of Teacher Education. His three questions about the extent of irrelevance of the B.Ed. programmes, lack of agreement on the definition of a good teacher and the (mis?) match between B.Ed. curriculum and the definition of a teacher are eye-openers. Another aspect he highlights is the hiatus between Teacher Education and actual *in situ* practice in schools. His international comparisons in this regard are rather consoling to us.

In the first chapter Singh makes a penetrating analysis of the inadequacies of the prevailing notions of Teacher Education, the gap be-

tween researchers and teachers, the bane that teacher politicians are to the field, lack of research into teacher preparation in our age old Indian tradition, and lack of clarity about the relationship between content and pedagogical methodology. He also describes the costs of inappropriate teacher training, and recommends massive, ongoing, longitudinal empirical research as the means for perpetually ensuring the relevance of Teacher Education. The bird's eye view of the landmarks in the development of teacher education in India, as far as this reviewer knows, is the first attempt to give a history of teacher education in India.

G.L. Arora and Pranati Panda give a quick, historical run up to the Curriculum Framework for Teacher Education developed by the NCTE in 1996 and also outline its nature and thrust. They point out the theoretical bias of the prevailing teacher education curricula. They also state that the four year integrated teacher education programme was found to be superior to the traditional programme of teacher preparation. They conclude that the prevailing teacher education programme is inadequate — not to speak of its being relevant to meet the challenges of the future.

Rajendra Dixit also makes a strong case for flexibility, diversity and innovativeness in the teacher education curriculum. K.C. Panda establishes the relevance of educational psychology in teacher education. He laments the inadequate attention accorded to it in the NCTE's

document. He gives guidelines for designing a curriculum in educational psychology relevant for the classroom teacher. R.P. Sharma examines the arguments against including philosophy in teacher preparation programmes and vindicates its relevance.

G.C. Pal looks at barriers to science teaching from a psycho-social perspective. He stresses the importance of non-scholastic factors in facilitating the learning of science vis-a-vis its content. He has also dealt with the linguistic dimension in science teaching. He commends interactive enquiry methods for teaching science. His pointwise guidelines given towards the end of this chapter will be found handy.

Uma Varshney and Latha Chandola present profiles of two institutions, the latter after a systematic empirical enquiry.

B.S. Dagar seeks to outline the evolution of pedagogy as a profession. But he begins from recent past and traces major developments in the realm of philosophy of education. K.R.P. Singh reports the findings of a study through informal interviews of working teachers' opinions about teacher education programme undergone by them. The next chapter is a report based on Campus Opinion Survey undertaken by its own students of R.C.E., Mysore 1993-94. The findings are not very complimentary.

R.P. Singh, editor of the book, documents meritorious defences against the condemnation of the profession that originated from an extrapolation of Bernard Shaw's famous observation about teachers. Of course, he has also made a searching inquiry about the confusions that prevail and the contradictions in institutional arrangements at the national level.

This is a book that deserves to be read by teacher educators and student teachers.

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\*Professor and Head, Department of Education, University of Madras, Chepauk, Triplicane P.O., Chennai-600 005.

# THESES OF THE MONTH

## A list of doctoral theses accepted by Indian Universities

### SOCIAL SCIENCES

#### Anthropology

1. Mondal, Bechuram. Birth weight and its bio-social proximates : A study on four populations of Meghalaya. (Prof Renuka Das), Department of Anthropology, Gauhati University, Guwahati.

#### Commerce

1. Bhagwati, Surajit Kumar Problems of rural branch management of commercial banks in Assam. (Prof D Bharhi), Department of Commerce, Gauhati University, Guwahati.

2. Brahmachary, C V An evaluation of the impact of implementation of self-employment for educated unemployed youth in Guntur District. (Prof K Hanumantha Rao), Department of Commerce, Nagarjuna University, Nagarjunanagar

3. Deshpande, Sunil Kumar. Bhartiya Railway mein karamchhari prabandhan ka alochanatmak adhyayan : Jabalpur Mandal ke vishesh sandarbh mein. (Dr R S Sohane), Department of Commerce, Rani Durgavati Vishwavidyalaya, Jabalpur

4. Diwan, Ravindra Varnanrao. Financial analysis of urban co-operative banks : A study of Belgum District. (Dr V M Kashalikar), Department of Commerce, Shivaji University, Kolhapur.

5. Narasimha Rao, V. A study of the role of the Monopolies and Restrictive Trade Practices Commission in the execution of the Monopolies and Restrictive Trade Practices Act, 1969 in India. (Prof D Dakshin Murthy), Department of Commerce, Nagarjuna University, Nagarjunanagar.

6. Narangrekar, Satish Arjun. A study of policy changes in banking sector and its impact on Indian economy with reference to nationalised banks. (Dr N R Thorat), Department of Commerce, Shivaji University, Kolhapur.

7. Patnaik, Lakshmi Narayan Trade unionism in public sector steel industries with special reference to Rourkela Steel Plant, 1982-1991. (Prof M M Gharpure), Department of Commerce, Nagpur University, Nagpur.

#### Economics

1. Dixit, Meera Ramesh Industrial sickness in small scale sector in Satara District. (Dr D H Hindocha), Department of Economics, Shivaji University, Kolhapur

2. Hatti, Irrama Tippannappa. A critical review of economic problems and prospects of cotton powerloom industry in Bombay, Karnatak Region : A case study of cotton powerloom industry in Rakbavi Banhatti Area. (Dr V B Jugale), Department of Economics, Shivaji University, Kolhapur.

3. Jain, Rakesh Kumar Regional analysis of growth and instability in oil seed economy of Madhya Pradesh. Department of Economics, Rani Durgavati Vishwavidyalaya, Jabalpur.

4. Jayashree. The role of sericulture in rural development : A study of two districts in Karnataka. (Dr N Rangaswamy), Department of Economics, Bangalore University, Bangalore.

5. Kharpatc, Ujjwala. Madhya Pradesh Vidyut Mandal mein sevivargiya prabandhan : Mahila karmachariyon ke vishesh sandarbh mein. (Dr D K Sinha), Department of Economics, Rani

#### Durgavati Vishwavidyalaya, Jabalpur

6. Panda, Mohanlal. Negotiating a convention on forests : Problems and prospects. (Prof Pushpesh Pant), Centre for Studies in Diplomacy, International Law and Economics, Jawaharlal Nehru University, New Delhi

7. Patil, Arjun Subrao. Economics of biogas plants in Sangli District. (Dr P B Kulkarni), Department of Economics, Shivaji University, Kolhapur.

8. Rajashakar, K S. Working and progress of sericulturists' cum farmers' service co operative societies : A case study of Mysore District. (Prof S N Nanje Gowda), Department of Economics, Bangalore University, Bangalore.

9. Sharma, Nitin Kumar A case study of forest resources in Mandla District. (Dr K B Agrawal), Department of Economics, Rani Durgavati Vishwavidyalaya, Jabalpur

10. Shrivast, Premilata. Kshetriya grameen bankon ka arthik drishti se kamjor vargon ke vikas mein yogan : Jabalpur Jile ke vishesh sandarbh mein alochanatmak adhyayan. (Dr V P Karwal), Department of Economics, Rani Durgavati Vishwavidyalaya, Jabalpur.

11. Subba Rao, D Fiscal Reforms Act at the state level : A case study of Andhra Pradesh. (Prof M Jagadeswara Rao), Department of Economics, Andhra University, Waltair.

12. Sukhmander Singh. Dynamics of agricultural production pattern under varying input-outputs prices in Punjab. Department of Agricultural Economics, Punjab Agricultural University, Ludhiana.

#### Education

1. Gill, Jupinder. Self concept, motivation and extraversion of female athletes in relation to their performance and age. (Sh G S Sandhu), Department of Education, Panjab University, Chandigarh

2. Jani, Hina Bhanushanker. Madhyamik shikshana Talimarthilona adhyayan vishayak purvasankalpanao. (Prof C K Bhogayata), Department of Education, Bhavnagar University, Bhavnagar

3. Jyothi Prasad, D. Clientele utility of correspondence Education. (Dr Y F W Prasada Rao), Department of Education, Andhra University, Waltair

4. Misra, Deo Dutta. A critical study of testing the effectiveness of new instructional method in attaining better achievement in Mathematics at the secondary level in Arunachal Pradesh. (Dr A K Sarma and Dr Indrance Dutta), Department of Education, Gauhati University, Guwahati

5. Mohite, Mahadeo Dattu. An inquiry into the present position and problems of teaching Mathematics in the secondary schools of Solapur District. (Dr T B Patil), Department of Education, Shivaji University, Kolhapur

6. Pai, Jaysheer Ramakant. Evaluation of Mathematics textbooks for standards V, VI, VII published by Gujarat State Board of School Textbooks. Department of Education, The Maharaja Sayajirao University of Baroda, Vadodara.

7. Ramnath Kishan, N. A study of the relationship between the pattern of expenditure incurred on day and residential schools run by private, central and state government managements in Andhra

Pradesh and the performance of students. (Prof S Parmaji), Department of Education, Kakatiya University, Warangal.

8. Sharma, Kamal Kant. Construction and standardisation of motor fitness test battery for elementary school children in Delhi U.T. (Dr Reet Mohinder Singh), Department of Physical Education, Panjab University, Chandigarh.

9. Sharma, Upma. An evaluation of vocational Education stream in senior secondary schools of Chandigarh. (Dr Tehal Kohli), Department of Education, Panjab University, Chandigarh.

10. Sindhi, Shreela. Kishoravastha ke chhatra evam chhatrayon ke mansik samasyayen, atmapratyaya ke sambandh mein bodh vistar. (Dr R P Shrivastava), Department of Education, Rani Durgavati Vishwavidyalaya, Jabalpur

11. Telang, Anuradha Ramesh. Vidyarthi shikshkanche vyaktimatva ghatak va tyanchi shikshan mastak paridheteel gunvatta yateel sahsambandhacha chikitsak abhyas. (Shri S L Lohakare), Department of Education, Nagpur University, Nagpur

12. Wasel Al Abed Mohd. The effects of selected pre writing, activities on the quantity and quality of students compositions in vocational training centres in Jordan and India. Department of Education, The Maharaja Sayajirao University of Baroda, Vadodra.

#### Management

1. Mohanan, P. Marketing problems of small enterprises with special reference to food processing industry in Kerala. (Dr Moosa A Bakar), Department of Management, University of Calicut, Calicut.

2. Ratnaparkhe, Megha. System design for resource planning and management. (Dr Y G Joshi), Department of Management, Devi Ahilya Vishwavidyalaya, Indore

#### Military Studies

1. Chaturvedi, Archana. Bharat evam Pakistan ke premanon kahamata ka tulanatmak adhyayan. (Dr F R Khan), Department of Military Studies, Devi Ahilya Vishwavidyalaya, Indore

#### Political Science

1. Hauhnar, Zosawmpun. The politics of ocean management in Southeast Asia : Problems and prospects. (Prof Parimal Kumar Das), Centre for South, Central, South East Asia and South West Pacific Studies, Jawaharlal Nehru University, New Delhi

2. Kishore Reddy, N. A study of left parties CPI, CPI (M), CPI (ML) : Electoral legitimacy and their support structure in Andhra Pradesh, 1952-1991. (Prof F D Vakul), Department of Political Science, Osmania University, Hyderabad.

3. Loke Nath. Human rights approaches : The Gandhian perspective. (Dr K S Jawatkar), Centre for International Politics, Organization and Disarmament, Jawaharlal Nehru University, New Delhi.

4. Nigar Sultana. Soviet Indian political relations in the 1980s : A study of the impact of global and regional environment. (Prof Devendra Kanahuk), Centre for Russian, Central Asian and East European Studies, Jawaharlal Nehru University, New Delhi.

5. Pucho, Kedse. Emerging maritime interests in Indian Ocean : A geopolitical perspective on Australia's role. (Prof R C Sharma), Centre for International Politics, Organization and Disarmament, Jawaharlal Nehru University, New Delhi.

6. Tandon, A R. India's emerging security environment with special reference to Indian Ocean and its littorals. (Prof A Narasimha Rao), Department of Political Science, Osmania University, Hyderabad.

#### Psychology

1. Mallia, Veena L. Psycho-social correlates of living with diabetes. (Dr K Madhu), Department of Psychology, Andhra University, Waltair

#### Public Administration

1. Ghai, Sandhya. Nursing service administration : A case study of Nehru Hospital PGI, Chandigarh. (Dr S L Goel), Department of Public Administration, Panjab University, Chandigarh

#### Sociology

1. Kirad, Tejsingh. Pashchim Madhya Pradesh ke janjatiyon mein apradhik pravrittiyon ka mulyankan : Ek bhongolik adhyayan. (Dr Y G Joshi), Department of Sociology, Devi Ahilya Vishwavidyalaya, Indore

2. Kumar, Rekha V. Adult education programme and rural women : A sociological study. (Dr A C Mudbidri), Department of Sociology, Karnatak University, Dharwad

3. Mehar Singh. Impact of quality of irrigation on land use, labour use and social mobility in Punjab. (Prof K Gopal Iyer), Department of Sociology, Panjab University, Chandigarh.

4. Mittal, Khazanchi Lal. Role of formal education in the status improvement of scheduled castes in rural Haryana. (Prof P N Pimpley), Department of Sociology, Panjab University, Chandigarh.

5. Sircar, Pronob Kumar. Impact of the development programmes on the primitive Tribes of Andaman and Nicobar Islands. (Dr Y G Joshi), Department of Sociology, Devi Ahilya Vishwavidyalaya, Indore.

6. Sriakshmi, R. Determinants and consequences of child labour in the City of Visakhapatnam : A sociological study. (Prof K Radhakrishna Murty) Department of Sociology, Andhra University, Waltair.

### National Centre for Biological Sciences TIRF Centre

Post Box 1234, IISc. Campus  
Bangalore-560 012

Applications are invited for two posts of Trainees at the National Centre for Biological Sciences to work on computational neuroscience simulation projects using the GENESIS neuronal simulator. Applicants must have a B.Sc./M.Sc. or a B.Tech. in any science or engineering discipline. Applicants must have computer exposure with UNIX, and exposure in programming in C/C++. Familiarity with graphical interface programming and/or neuronal simulation packages is required. Short listed candidates will be interviewed for final selection. The post is to run for 1 year, extendable by another year.

Salary : Rs. 4000/- p.m. for B.Sc. and Rs. 5400/- p.m. for M.Sc./B.Tech candidates.

The application must reach the Administrative Officer at the above address latest by 15th November, 1998.



# EDUCATION NEWS INDEX

A list of select articles and editorials on education from newspapers received in the  
AIU Library during September 1998

## EDUCATIONAL PHILOSOPHY

Jagadisan, S. Essence of scholarship. *The Hindu* 6.9.98.

## EDUCATIONAL PSYCHOLOGY

Appasamy, Aruna. Learning : A fire to ignite young mind. *The Hindu* 1.9.98.

Dave, Dipit. Leave us kids alone. *The Telegraph* 22.9.98.

Hathiramani, Mala. I am ambitious and want to be successful'. *Free Press Journal* 23.9.98.

Mitra, Saheli. Bitten by the tuition bug. *The Telegraph* 21.9.98.

Padman, M.A. Why do children resort to copying. *The Hindu* 29.9.98.

Patrick Kachur, S. Juvenile crime in USA. Why school kids will. *Deccan Chronicle* 9.9.98.

Prema. College over now what? *Free Press Journal* 16.9.98.

Salgame, Lakshmi. Advantage of education. *Deccan Herald* 11.9.98.

Thappar, Sunita. Learning lessons can be child's play. *The Times of India* 8.9.98.

## EDUCATIONAL SOCIOLOGY

Banerjee, Ipsita. Education as we know it. *The Statesman* 16.9.98.

Madhusudhan, Leela. Parents, teachers should work in union. *The Hindu* 22.9.98.

## EDUCATIONAL POLICY & PLANNING

Krishna Kumar. Reports and reviews : No marks for school reform. *The Times of India* 4.9.98.

## EDUCATIONAL ADMINISTRATION

Agrawal, Damodar. Cracking the dress code. *Deccan Herald* 27.9.98.

Goswami, Hirendra Kumar. UGC's recommendations on teacher's pay scale. *The Assam Tribune* 30.9.98.

Haranath, P S R K. Rural areas languish without medical care. *The Hindu* 15.9.98.

Jhunjhunwala, Bharat. Flawed human development index. *The Pioneer* 22.9.98.

Mehta, V R. Education beyond humbug. *The Times of India* 18.9.98.

Parmar, Shubha. Expand varsity education. *The Pioneer* 23.9.98.

Sarma, Alpana. A semester system has its pitfalls. *The Times of India* 21.9.98.

Stanley, Selwyn. 'Chaotic proliferation' of social work insti-

tutions. *The Hindu* 22.9.98.

Sunil Kumar. JNU's secret hospital. *The Pioneer* 30.9.98.

Vijendra Rao, P M and Vattam, Krishna. For sale : PG seats. *Deccan Herald* 12.9.98.

## EDUCATION & POLITICS

Datta, Damayanti. Lesson in primary folly. *The Telegraph* 12.9.98.

Hans, Nanki. Din marks ICHR meet. *The Tribune* 14.9.98.

HISTORY RE-COLOURED (Editorial) *The Hindustan Times* 7.9.98.

Joshu, Murali Manohar. 'Noise over ICHR is made by Marxists whose vested interest have been hurt'. *Indian Express* 13.9.98.

Mishra, Sidharth. Grooming politicians. *The Pioneer* 9.9.98.

REWRITING HISTORY (Editorial) *Deccan Herald* 22.9.98.

## CURRICULUM

Madan, Karuna. ELP : Sure shot treatment for lacklustre leadership. *The Pioneer* 21.9.98.

Murthy, Vidya. The pushing edge. *Deccan Herald* 20.9.98.

Ramesh, Kala Krishnan. Education : City canvas. *Deccan Herald* 20.9.98.

## LANGUAGE & LANGUAGE POLICY

A LANGUAGE to mind (Editorial) *The Times of India* 9.9.98.

Agrawal, Damodar A. Capital stepsister. *Deccan Herald* 17.9.98.

Basheer Hussain, M. The language muddle. *Deccan Herald* 13.9.98.

Chaudhuri, Prasun. Class conflict. *Indian Express* 27.9.98.

Dasgupta, Sabyasachi. Languages for all seasons. *The Hindustan Times* 3.9.98.

Ghose, Bhadr. State of the communion. *The Telegraph* 28.9.98.

Mishra, Pabitra K. English as a medium of instruction needed. *The Assam Tribune* 1.9.98.

Rowan, David. Say that again. *The Telegraph* 25.9.98.

Sen, Ashoke. Too old to play languages. *The Telegraph* 29.9.98.

Sripriya V. The glamour of grammar. *Deccan Herald* 27.9.98.

## SCIENCE EDUCATION

Bhattacharjee, S. Hit for a six : IIT failures in education. *The Statesman* 14.9.98.

Mahajan, Ashok. From lab to factory : The coming of age of

Indian Science. *The Statesman* 21.9.98.

Singh, R M. Science made easy. *The Statesman* 18.9.98.

Zeyaul Heque, M. Science has no religion. *The Statesman* 18.9.98.

### VOCATIONAL EDUCATION

A TECHNICAL initiative (Editorial) *The Tribune* 16.9.98.

Atmanand. Building care competence. *The Economic Times* 14.9.98

Bahl, Taru. Foreign trade as a career. *The Tribune* 6.9.98.

—————. Nursing as a career *The Tribune* 27.9.98.

Bharghava, E Manorama. All you wanted to know about Statistics. *Deccan Chronicle* 2.9.98.

Biswas, Ranjita. Time management. *The Hindustan Times* 17.9.98.

Chatterjee, Kaushik. Have bucks, will study. *The Statesman* 11.9.98.

Dharam Prakash. Teething trouble. *The Statesman* 11.9.98.

Fernando, A C. Industrial training institutes cry for reform. *The Hindu* 8.9.98.

Ghosh, Monika. A prop between despair and hope. *Deccan Herald* 26.9.98.

Haranath, PSRK. Rural are a languish without medical care. *The Hindu* 8.9.98.

Madan, Karuna. Careers in management. *The Pioneer* 14.9.98

—————. Gearing up for management. *The Hindu* 7.9.98.

Mani, R V S. Lesser known but better. *The Economic Times* 14.9.98

Mehta, Varesh. View the tree and the wood. *The Economic Times* 14.9.98.

Mittal, L N. Redesigning management education. *The Pioneer* 28.9.98.

Montre, Buparno. Different dimensions. *The Economic Times* 14.9.98

Raman, Usha. A career under the microscope. *The Hindu* 29.9.98.

Rao, Sabitha. Aiming sky-high. *Deccan Herald* 12.9.98.

Sen, Kuheli. Yoga in education. *The Times of India* 21.9.98

Sharma, Aparna. Where you can learn to earn. *Indian Express* 2.9.98.

Sharma, R D. Study the law of the land. *The Times of India* 7.9.98

Singh, Vibha. Designing dreams. *The Hindustan Times* 24.9.98.

Tandon, Namrata. Forensic science : In pursuit of truth. *The Times of India* 7.9.98.

Wasan, Tarun. Making bucks on a green course. *The Times of India* 7.9.98.

### DISTANCE EDUCATION

Mishra, Bimal Kumar. Open learning for entrepreneurs. *The Times of India* 7.9.98.

### TEACHERS & TEACHING

Abraham, Jacob. Why teaching? *Deccan Herald* 6.9.98.

Agrawal, Damodar. A monolith of salary earners. *The Statesman* 13.9.98.

Baruah, Bhuban. Teachers and agitation. *The Assam Tribune* 5.9.98.

Dandapani, S. The rise and fall of the titanic.. *The Hindu* 8.9.98.

END THIS stalemate, Mr Joshi (Editorial) *The Tribune* 1.9.98.

Gupta, Anuya. Teaching them the ropes. *The Economic Times* 28.9.98.

Jayaraman, Gayatri. My teacher my hero. *The Times of India* 5.9.98.

Jioardar, Manas. The image needs repainting *The Statesman* 7.9.98

Kaul, Malvika. Teaching not policing. *The Pioneer* 5.9.98.

Koshy, Thomas. Academic credentials do not matter for good teachers. *The Hindu* 22.9.98.

—————. The art of studying and teaching. *The Hindu* 15.9.98.

Mishra, Sidharth. Striking power. *The Pioneer* 2.9.98.

Murthy, D B N. Warding of talent. *Deccan Herald* 13.9.98

Nayar, Roma. Cry the teacher *The Tribune* 5.9.98.

NOT TEACHERS day (Editorial) *The Telegraph* 8.9.98.

Parackal, J. Teachers day. *The Assam Tribune* 5.9.98.

Ramanathan, Gayatri. My teacher, my hero. *The Times of India* 5.9.98

Rao, Komilla. Lead kindly lights. *The Pioneer* 5.9.98.

Reshma, M K. In search of a role model. *Deccan Herald* 5.9.98.

Sengupta, Amit. Blissful ignorance. *The Pioneer* 4.9.98.

Subrahmanian, Mahalakshmi. Teacher as a friend. *Deccan Herald* 5.9.98.

TEACHERS' STRIKE and after (Editorial). *The Hindu* 12.9.98.

Vaidyanathan, Lata. Hail, the guru. *The Tribune* 5.9.98.

### COUNSELLING & GUIDANCE

Raman, Usha. Back to the basics. *The Hindu* 15.9.98.

### EDUCATIONAL RESEARCH

Ishtaque Ahmed. Changing research culture. *The Statesman* 25.9.98.

RESUSCITATING RESEARCH (Editorial). *The Times of India* 23.9.98.

## EDUCATIONAL EVALUATION

**NEW EVALUATION strategies** (Editorial). *The Hindu* 28.9.98.

## LIBRARIES & BOOKS

Beotra, Yeah. Spreading the light of learning. *The Tribune* 9.9.98.

Joshua, Anita. It was a prolonged battle of nerves. *The Hindu* 7.9.98.

Kazmi, Nikhat and Paul, Sunita. To market to market to buy a fat book. *The Times of India* 6.9.98.

Nayaknair Anand. Information at your fingertips. *Deccan Herald* 4.9.98.

Srinivasan, Prema. Bringing children and books together. *The Hindu* 20.9.98.

Sunil Kumar. Worms in a rotten library. *The Pioneer* 26.9.98.

Vasudeva, P K. Patent untruths-I. *The Statesman* 10.9.98.

———. Patent. Untruth-II : Clearing legislative logjam. *The Statesman* 11.9.98.

Zila Singh. Libraries in education. *The Pioneer* 21.9.98.

## STUDENTS & STUDENT ACTIVITIES

Mishra, Devrupa. Crisis of living space. *The Statesman* 4.9.98.

Sharma, Aparna. New found freedom. *The Pioneer* 16.9.98.

Singh, Astha. Ragging rows. *The Pioneer* 30.9.98.

## PHYSICAL EDUCATION & SPORTS

Sekhar, Senjam Raj. Studies and sport, can they coexist. *The Times of India* 7.9.98.

## ADULT EDUCATION

Aarti. Accelerating literacy. *The Assam Tribune* 8.9.98.

Modi, K R. The sunlight calls. *Deccan Herald* 6.9.98.

Radhakrishnan Rao. 3 R's for Gujjars. *Deccan Herald* 6.9.98

## ELEMENTARY & SECONDARY EDUCATION

Banik, Arindam. Primary education and development : Plain tales from the states. *Indian Express* 30.9.98

Mukaram, N. Endless woes in 'Open air schools'. *Deccan Chronicle* 20.9.98.

Puri, J N. Cess for compulsory primary education. *The Tribune* 29.9.98.

Srinath Reddy, K. Schooling children to tread on the health track. *The Times of India* 21.9.98.

## COMPARATIVE EDUCATION & AREA STUDIES

Bhalla, Harpal. Education in Japan. *The Statesman* 9.9.98.

Madan, Karuna. Australia at the forefront of global education. *The Pioneer* 28.9.98.

Rajpal, Shweta. Managing down under. *The Times of India* 21.9.98.

Sengupta, Mona. Ready, steady and go. *The Telegraph* 14.9.98.

**TRAINING TEACHERS** and students (Editorial). *The Pioneer* 11.9.98.

## INTERNATIONAL COOPERATION

Halaney, Heena. Are you ready to study abroad? *Free Press Journal* 23.9.98.

Mehta, Vibha. Go west, bright one. *Indian Express* 9.9.98.

Singh, Gitanyah. You too can study abroad. *The Statesman* 11.9.98.

## INSTITUTIONAL PROFILE

Amrik Singh. Case for renovation : University of Delhi. *The Hindustan Times* 1.9.98.

Barooah, A.K. NE Indira Gandhi Regional Institute of Medical Sciences. : An appraisal. *The Assam Tribune* 30.9.98.

Dias, Joe Menino. St Xavier's : Education at its best. *Free Press Journal* 23.9.98.

Gupta, Pallavi. Oxford is much than just the university. *Free Press Journal* 12.9.98.

**INDIAN INSTITUTE** of Finance (Editorial). *Indian Express* 30.9.98.

**IIML REDEFINING** management education for the 21st century. (Editorial). *The Pioneer* 27.9.98.

Ittaman, Shali. Hindu College . 100 years old *The Pioneer* 9.9.98.

Kapur, Ratna. Holistic education for children : Sagar School, Tijara. *The Hindu* 20.9.98.

**NATIONAL INSTITUTE** of Nutrition (Editorial) *Deccan Chronicle* 9.9.98.

Pandey, Brajesh. Allahabad University : Varsity torn asunder. *The Pioneer* 30.9.98.

Rahi, Prashant. Roorkee University : Trained to be theatrecians. *The Statesman* 4.9.98.

## BIOGRAPHICAL PROFILE

Datta, V N. A visionary with a difference : Sardar Dyal Singh Majithia. *The Tribune* 9.9.98.

Kapur, Dalip K. An educational per excellency : Sardar Dayal Singh Majithia. *The Tribune* 9.9.98.

Madan Gopal. A broad minded liberal : Sardar Dayal Singh Majithia. *The Tribune* 9.9.98.

———. His role in the birth of PU : Sardar Dyal Singh Majithia. *The Tribune* 9.9.98.

Pandurang, Mala. A much loved teacher : Dr S Radhakrishnan. *The Hindu* 5.9.98.

Trivedi, Ajayendranath. Dr Radhakrishnan: A world citizen. *The Assam Tribune* 5.9.98.

# CLASSIFIED ADVERTISEMENTS

## ALIGARH MUSLIM UNIVERSITY

ALIGARH (U.P.)

Advertisement No. 3-A/98-99

Dated : 15.10.1998

Applications on the prescribed form are invited for the following posts by 30.11.1998.

Number and nature of the posts may vary at the time of interview. The Selection Committee will be authorised to relax the prescribed qualifications if a highly qualified scholar is otherwise found suitable for the post. Higher initial start may be given to candidates possessing exceptional qualifications and experience.

### Scale of Pay

Professor Rs 4500-7300 plus allowances

Reader Rs 3700-5700 plus allowances

Lecturer Rs 2200-4000 plus allowances

### A FACULTY OF ARTS/SCIENCE/THEOLOGY

- 1 Professor of Philosophy, Department of Philosophy

### QUALIFICATIONS - ESSENTIAL :

An eminent scholar with published work of high quality actively engaged in research with 10 years of experience in Postgraduate teaching and/or research at the University/National Level Institutions, including experience of guiding research at doctoral level

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge

- 2 Reader in Geology (Structural Geology), Department of Geology
- 3 Reader in Geology, Department of Geology.

### QUALIFICATIONS - ESSENTIAL :

"Good academic record with a doctoral degree or equivalent published work. Candidates from outside the University system in addition shall also possess atleast 55% marks or an equivalent grade at the Master's Degree level. Eight years experience of teaching and/or research (at least 5 of these years were as Lecturer) and has made some mark in the areas of scholarship as evidenced by quality or publications, contribution to educational renovation, design of new courses and curricula."

- 4 Research Officer, Department of Physics

Scale of Pay Rs 2200-4000 Plus allowances

### QUALIFICATIONS - ESSENTIAL :

- 1 Master's Degree in Physics or equivalent from a University in India or abroad
- 2 Atleast two years experience of teaching Undergraduate or Postgraduate classes in Physics and or two years experience of research.
- 5 Lecturer in Shia Theology, Women's College

### QUALIFICATIONS - ESSENTIAL :

- (i) A Doctor's Degree in Shia Theology or Research work of an equally high standard and,
- (ii) Good academic record with first or high second class (C in the seven point scale) Master's degree in the relevant subject (Shia Theology) or Fazil of any well reputed Shia Madarsa with adequate knowledge of English or an equivalent degree of a foreign University

### B FACULTY OF MEDICINE

- 6 Professor in Community Medicine, Department of Community Medicine

### QUALIFICATIONS - ESSENTIAL :

M.D (Social & Preventive Medicine)/ (Community Medicine)

M.D. (Medicine) with D.P.H

Teaching/Research experience .

As Reader in Social & Prev. Medicine for 04 years in a Medical College

- 7 Readers in Pharmacology, Department of Pharmacology

### QUALIFICATIONS - ESSENTIAL :

MD (Pharmacology)/

MD (Pharmacology & Therapeutics)/

MBBS with M.Sc. (Pharmacology)/

Ph.D. (Medical Pharmacology)/D.Sc. (Medical Pharmacology)

Teaching/Research Experience .

As Lecturer in Pharmacology for five years in a Medical College

- 8 Reader in Dermatology, Department of Dermatology

### QUALIFICATIONS - ESSENTIAL

M.D (Dermatology & Venereology)

## THE MUSLIM EDUCATIONAL SOCIETY (REGD.) CALICUT-1

MES/AC/E-1673/98

Dated : 22.10.98

### WANTED

Applications are invited from qualified hands for the posts of Principals in M.E.S. Collegiate Service under Calicut and Mahatma Gandhi Universities.

1. No. of Vacancies : 2
2. Qualification and Experience : As prescribed in the statutes of Mahatma Gandhi and Calicut Universities.
3. Age and Scale of Pay : As prescribed by the Kerala Government.
4. Application Fee : Postal Orders or D.D. for Rs. 100/-

Apply within 30 days of this Advertisement with Bio-data and self attested copies of Certificates to the General Secretary, M.E.S. (Regd.), Bank Road, Calicut-673 001. Eligible staff of M.E.S. Service have also to apply.

**K.K. Aboobacker**  
GENERAL SECRETARY



**M.D (Medicine) with D.V.D., D.D.**

**Teaching/Research experience :**

As Lecturer in Venereology & Dermatology for 05 years in a Medical College.

9. Reader in Microbiology, Department of Microbiology

**QUALIFICATIONS - ESSENTIAL :**

M.D (Bacteriology)/M.D (Microbiology)/

M.D (Bacteriology with Pathology)/

M.D (Pathology & Bacteriology)/

M.B.B.S. with M.Sc (Medical Bacteriology)/M.Sc. (Medical Microbiology)

Ph.D (Medical Microbiology)/Ph.D. (Medical Bacteriology)/

D.Sc. (Medical Bacteriology)/D.Sc. (Medical Microbiology)

**Teaching/Research Experience :**

As Lecturer in Microbiology for 05 years in a Medical College.

10. Reader in Bio-Chemistry, Department of Bio-Chemistry, J.N. Medical College.

**QUALIFICATIONS - ESSENTIAL :**

M.D (Biochemistry)/

MBBS with M.Sc (Medical Biochemistry)/

Ph.D. (Medical Biochemistry)/D.Sc. (Medical Biochemistry)

11 Lecturers in Microbiology, Department of Microbiology.

**QUALIFICATION - ESSENTIAL :**

M.D (Bacteriology)/M.D. (Microbiology)/

M.D (Bacteriology with Pathology)/

M.D. (Pathology & Bacteriology)/

M.B.B.S. with M.Sc. (Medical Bacteriology)/M.Sc. (Medical Microbiology)

Ph.D. (Medical Microbiology)/Ph.D. (Medical Bacteriology)/

D.Sc. (Medical Bacteriology)/D.Sc. (Medical Microbiology)

**Teaching/Research experience :**

Requisite recognised postgraduate qualification in the subject.

12. Lecturer (MOH) Lady, Department of Community Medicine

**QUALIFICATIONS-I-ESSENTIAL :**

MD (Social & Preventive Medicine)/(Community Medicine)

MD (Medicine) with D.P.H.

**Teaching/Research experience :**

Requisite recognised Post Graduate qualification in the subject.

**H-DESIRABLE :** Published Research work in the speciality.

**Note :** Selected persons will have to work and reside at the Rural Health Training Centre of the Department at JAWAN about 15 Kms from the Medical College.

13. Lecturer in Prosthodontics/Dental Materials, Department of Prosthodontics/Dental Materials (Dental College)

**QUALIFICATIONS - ESSENTIAL :**

M.D.S. (Prosthodontics)

14 Lecturer in Pedodontia, Department of Pedodontia, (Dental College).

**QUALIFICATIONS - ESSENTIAL :**

M.D.S. (Pedodontia)

**Note :** (For the posts at Sr. No 13 & 14). In case the candidates having M.D.S. with the above speciality are not available the candidates having B.D.S. may be considered

15 Medical Officer (Pathologist), J.N. Medical College Hospital

Scale of Pay : 2200-4000 plus allowances

**QUALIFICATIONS - ESSENTIAL :**

(i) M.B.B.S

(ii) Postgraduate Degree or Diploma in Pathology

(iii) Three years experience in the relevant

## KURUKSHETRA UNIVERSITY KURUKSHETRA DIRECTORATE OF CORRESPONDENCE COURSES

### Admission Notice (1998-99)

Admissions to the following courses through distance education are open to persons from all over India and abroad :

#### MASTER DEGREE COURSES :

1. 2-year M.A. in Hindi, English, Sanskrit, Panjabi, Pol. Science, Public Administration, History & Economics, M.A./M.Sc. Mathematics.
2. M.Com. 2-year course, LL.M. (only 2nd year)
3. Master of Financial Management (M.F.M.) 2-year
4. Master of Library & Information Science (M.Lib. & Inf. Sc.) 1-year
5. Master of Education (M.Ed.), 1-year

#### DEGREE COURSES :

1. B. Lib. & Inf. Sc. 1-year course
2. B. A. 3-year (Part I, II, III)
3. B.Com. 3-year (Part I, II, III)
4. B. B. A. 3-year (Part I, II, III)

#### CERTIFICATE / DIPLOMA COURSES :

1. Certificate in Computer Applications (CCA) 1 year (for 10+2 pass)
2. Dip. in Lib. & Inf. Sc. (D.Lib & Inf. Sc.) 1-year (for Matric pass)

#### POST GRADUATE DIPLOMA COURSES :

1. PG Diploma in Tour & Travel Management ; 1-year
2. PG Diploma in Journalism & Mass Communication ; 1-year
3. PG Diploma in Computer Applications ; 1-year
4. PG Diploma in Translation (Hindi / English) ; 1-year
5. PG Diploma in Environmental Education ; 1-year
6. PG Diploma in Marketing Management ; 2-year (Part I & II)
7. PG Diploma in Tourism & Hotel Management ; 2-year (Part I & II)

**PROSPECTUS** containing admission form and other details can be had from the Manager (P & P), K.U. Kurukshetra - 136 119 on payment of Rs. 60/- (Rs. 40/- for SC/ST) at the counter or by sending a Bank Draft of Rs. 80/- (Rs. 60/- for SC/ST) in favour of the Registrar, K.U. Kurukshetra and by sending two self addressed slips as also indicating Code No. CC-98.

**LAST DATE** for the receipt of Admission Forms in the Department with late fee of Rs. 200/- **31.10.1998**, Rs. 400/- **30.11.1998** and Rs. 500/- **31.12.98**.

**NOTE :** Unless otherwise decided by the University in any specific case, the examinations conducted by various Universities / Deemed Universities / State Education Boards are recognised for the purpose of admission to various courses in the Directorate of Correspondence Courses.

**DIRECTOR**

field in a recognised teaching Hospital of which one year as a Resident Pathologist or equivalent.

16. Medical Officer (Blood Bank), J.N. Medical College Hospital

Scale of Pay 2200-4000 plus allowances

**QUALIFICATIONS - ESSENTIAL :**

- (i) M.B.B.S
- (ii) PG Degree or Diploma in Pathology
- (iii) Three years experience as Blood Transfusion Officer in a recognised Hospital or three years experience of working in Blood Bank of a teaching Hospital

OR

- (i) M.B.B.S.
- (ii) Five years experience as Blood Transfusion Officer in a recognised Hospital/teaching Hospital

**II-DESIRABLE :** Special training in practice of Blood Transfusion from a recognised Institution

Prescribed application forms with instructions may be had either

- a) Personally from the Reception Counter, Administrative Block, AMU on production of Cash receipt for Rs 25/- issued by the Cash Section, Finance Office, A M U, Aligarh,

OR

- b) By Post from the Assistant Registrar (Selection Committees), Aligarh Muslim University, Aligarh-202 002, by sending a written request (mentioning the post, Advertisement number and date) with a self addressed stamped Rs 4/- envelope of 9"x4" size and a Demand Draft/IPO for Rs 25/- payable to the Finance Officer, Aligarh Muslim University, Aligarh-202 002. The cover should be superscribed, on the top left with 'Request For Employment Form'

**General Note :** For the posts at S Nos 1, 2, 5, 6, 7, 8, 9, 11 & 15 those who have applied earlier need not apply again. They will be considered on the basis of their previous applications if found eligible. They may however send any additional information about their qualifications/experience etc for consideration if so desire.

Complete application form alongwith Cash receipt/Demand Draft/IPO for Rs 125/- (non-refundable application fee) payable to the Finance Officer, AMU, Aligarh procured in the above manner may either be delivered personally or sent by Post, superscribing on the top left of the cover the post applied for, advertisement number and date, to the Assistant Registrar (Selection Committees), Aligarh Muslim

University, Aligarh-202 002, so as to reach him by 30.11.1998.

**Important Note :** Applications received late or without necessary supporting documents or not accompanied by full prescribed fee or not submitted in the prescribed form shall be rejected summarily. The scales of pay mentioned above are unrevised.

Prof. H.A.S. Jafri  
REGISTRAR

**UNIVERSITY OF JAMMU**

Applications on the prescribed application form obtainable from the University office are invited for the following vacant posts so as to reach the undersigned on or before November 30, 1998.

1. **Professor (Rs. 4500-7300) — Twelve**  
One each in Sanskrit, Urdu, Electronics, Computer Science, Ancient Indian History, Bio-Technology, Sociology, Psychology, Mathematics, Home Science and two in Management Studies
2. **Librarian (Rs. 4500-7300) — One**
3. **Registrar/Controller of Examinations (Rs. 4500-7300) — One**
4. **Centre for National Security and Regional Studies**  
Co-ordinator/Director (Rs 4500-7300) — One  
Senior Fellow (Rs 3700-5700) — One  
Fellow (Rs 2200-4000) — Two
5. **Reader (Rs. 3700-5700) — Nine**  
One each in Management Studies, Physics, Geology, Chemistry, Library Science, Bio-Technology, Sociology, Psychology and in Directorate of Distance Education (Law)
6. **Lecturer (Rs. 2200-4000) — Eighteen**  
One each in Sanskrit, Urdu, Geology, Law (Reserved for SC candidate only), Mathematics, Botany, Statistics, Psychology, two each in Bio-Technology, Sociology and one each in Organic Chemistry & Inorganic Chemistry and in the Directorate of Distance Education (Political Science, Commerce, English and Education — one each)
7. **Computer Programmer in Computer Centre (Rs. 2200-4000) — One**
8. **Servicing & Development Engineer (Rs. 2200-4000) — One**
9. **Deputy Registrar (Rs. 3700-5700) — One**
10. **Assistant Registrar (Rs. 2200-4000) — One**
11. **Employment Officer (Rs. 2200-4000) — One**

(for item nos 8 to 11 Only J&K State Subjects are eligible)

12. **Computer Scientist — B (Rs. 2200-4000) (Under Infilnet Programme) — One** (Temporary upto 15th March, 2002 but likely to continue)

13. **Project Officer in Adult Education (Rs. 2200-4000) — One**

Above Pay Scales are un-revised.

Prescribed application forms and other details like qualifications etc can be obtained from the Assistant Registrar (Forms and Stationary) personally on payment or by sending crossed Indian Postal Orders or Bank Draft worth Rs 120/- drawn in favour of the Registrar, University of Jammu-180 006, encashable at Jammu Post Office/Bank, from 30th October, 1998

REGISTRAR

**Department of Biochemistry  
School of Life Sciences  
University of Hyderabad  
Hyderabad-500 046**

**POST-DOCTORAL POSITIONS IN  
NEUROSCIENCE**

**ADVERTISEMENT/NOTIFICATION  
Dated : October 26, 1998**

Applications, on a plain paper, are invited for TWO Post doctoral positions under the Neuroscience promotion program of National Brain Research Centre (NBRC), a centre created by DBT recently, at New Delhi. The selected persons will do research work under the general supervision of the undersigned in the area of Molecular Neurobiology/Neurochemistry and more specifically on problems connected with DNA-repair, Apoptosis, Telomeres in developing and aging brain.

**Qualifications required :** A consistently good academic record with a Ph.D. in any frontier area of Biological/Medical Sciences. Candidates with already proven expertise in molecular biological techniques/Neurochemistry will be preferred. Most importantly, the candidate should possess genuine interest in pursuing a research career in the field of Brain and its functions.

**Salary :** Rs 10,000 per month fixed with an additional grant of Rs 80,000 per year towards consumables and contingencies.

**LAST DATE FOR RECEIPT OF APPLICATIONS November 30th, 1998.**

**Please Note :** Those candidates who think they have the requisite qualifications for the position and have mailed their application with all the necessary details, may please appear for interview at their own expenses at 2.00 PM on Saturday the 5th Dec, 1998. Venue Biochemistry Department, School of Life Sciences, University of Hyderabad Campus. No separate intimation will be sent for this purpose.

Prof. Kalhuri Subba Rao  
Head, Department of Biochemistry  
Tel : 040-3010451; Fax : 040-3010120  
E-Mail: khrs1@uohyd.ernet.in



**BIRLA INSTITUTE OF  
TECHNOLOGY & SCIENCE (BITS)  
PILANI (RAJASTHAN) 333 031**

**Adv. No. 2/98/Admn.**      **Admissions for II Semester 1998-99**  
Applications are invited for admission in the second semester starting from January, 1999 in the following programmes:

**I. Integrated First Degree Programmes (Code : FD)** in Group A, B and C leading to B.E. (Hons.); B.Pharm. (Hons.); M.M.S.; M.Sc. (Hons.) and M.Sc. (Tech.) degrees.

**Normal Input :** Pass in 10+2 from Central/State Board or its equivalent, with Physics, Chemistry, Mathematics and adequate proficiency in English

**Note :** 1. Since major admissions are made in the first semester, only a limited number of candidates are admitted in the second semester.

2. Admissions are based on the normalized aggregate percentage of marks and there is no separate entrance examination.

**II. Higher Degree Programmes (Code : HD) :** M.E. in Chemical; Civil, Computer Science, Design Engineering; Electronics & Control; Manufacturing Systems Engineering; Mechanical, Software Systems, M. Pharm.

**Duration :** Normally three semesters.

**Normal Input :** M.E. : Chemical, Civil; Computer Science; Mechanical-Integrated first degree of BITS in the same discipline or its equivalent Design Engineering; Manufacturing Systems Engineering-Integrated first degree of BITS in Mechanical or its equivalent or M.Sc. (Tech) Engineering Technology of BITS or its equivalent with the requirement of taking certain additional courses Electronics & Control—Integrated first degree of BITS in Electrical & Electronics/Instrumentation or its equivalent

Software Systems—Any Integrated first degree of BITS or its equivalent with specific prior preparation

**M. Pharm. :** Integrated first degree of BITS in Pharmacy or its equivalent

**Note :** For Higher Degree programmes, shortlisted candidates will be asked to come to Pilani for tests and interview at their cost.

**III. Doctoral Programmes leading to Ph.D. (Code : PH)**

**Normal Input :** Any Higher Degree of BITS or its equivalent Any applicant with qualification equivalent to Integrated first degree of BITS will be first examined for suitability to one of the higher degree programmes of the Institute

**Financial Assistance :** Candidates with outstanding performance and high motivation towards teaching and research will be considered for a Fellowship/Teaching Assistantship. A full time teaching assistantship of the Institute is of Rs. 4500/- per month with full fee waiver. Students who possess only M.Sc. or B.E. qualification may also be considered for part-time Teaching Assistantship. Interested candidates must also send on a separate paper their curriculum vitae with proper references to Deputy Director BITS Pilani (Rajasthan) - 333 031 (Fax No. 01596-44183)

**IV. Ph.D. Aspirants Scheme :** The scheme is aimed for employed professionals having long experience and proven competence. Under the scheme candidates will be allowed to pursue their research leading to Ph.D. degree at their own locations and on topics of research from their professional world

**FOR ALL DETAILS CANDIDATES MUST CONSULT THE  
BULLETIN SUPPLIED ALONG WITH THE APPLICATION FORM  
APPLICATION PROCEDURE**

Application form and Bulletin can be obtained from the undersigned against a request on plain paper giving the name and code of the programme for which application is requested, candidate's name, complete postal address with pincode, the required despatch mode and demand draft details, accompanied by a single crossed Demand Draft drawn in favour of Birla Institute of Technology & Science (BITS), Pilani payable at State Bank of Bikaner & Jaipur, Pilani (Code : 1398) or UCO Bank, Vidya Vihar, Pilani (Code : 0150) for Rs. 500/- (Registered Parcel Post) or Rs. 600/- (Registered Letter/Speed Post wherever speed post is available) or US \$25/- or its equivalent (for sending to foreign countries by Airmail)

**Deadline for submission of the completed application forms is 5.00 p.m. on 30th November, 1998.**

October, 1998

**ADMISSIONS OFFICER  
BITS, Pilani - 333 031**



**BIRLA INSTITUTE OF  
TECHNOLOGY & SCIENCE (BITS)  
PILANI (RAJASTHAN) 333 031**

**Adv. No. 2/98/DLPD**      **Admissions for II Semester 1998-99**

**OFF-CAMPUS DISTANCE LEARNING AND  
COLLABORATIVE PROGRAMMES**

The Birla Institute of Technology and Science (BITS) is an all India Institute of higher education and is deemed to be a university by the Government of India. The Institute offers the following off-campus distance learning and collaborative programmes, which aim to integrate the work environment of the employee with the learning environment required by the Institute

**INTEGRATED FIRST DEGREE PROGRAMMES BS  
(Code BZ)**

*(Normal duration 6 Semesters)*

1. BS Engineering Technology (ET)

2. BS Information Systems (IS)

**Input requirements :** Employed persons with about two years experience and a technical diploma or an undergraduate degree like B.Sc. etc. involved in Engineering professions for ET or computer Software/Hardware professions for IS.

**HIGHER DEGREE PROGRAMMES - MS  
(Code MZ)**

*(Normal duration 3 Semesters)*

3. MS Software Systems (SS)

**Input requirements :** Employed persons in Software Work Environment and Integrated First Degree of BITS like B.E. (Hons.), M.Sc. (Hons.) etc. or its equivalent in appropriate discipline

BITS also operates several collaborative programmes with many industries across the country in functional areas directed towards their HRD needs. Any organization interested in such collaborative programme may write to the Institute for details.

**APPLICATION PROCEDURE**

Application form and Bulletin can be obtained from the undersigned against a request on plain paper giving name and code of the programme for which application is requested, candidate's name, complete postal address with pincode, the required dispatch mode and Demand Draft details, accompanied by a single crossed Demand Draft drawn in favour of Birla Institute of Technology & Science (BITS), Pilani payable at State Bank of Bikaner & Jaipur, Pilani (Code : 1398) or UCO Bank, Vidya Vihar, Pilani (Code : 0150) for Rs. 500/- (Registered Parcel Post) or Rs. 600/- (Registered Letter/Speed Post wherever speed post is available) or US \$25/- for sending to foreign countries by Airmail)

**Deadline for submission of the completed application forms is 5.00 p.m. on 30th November, 1998.**

October, 1998

**ASSISTANT DEAN, DLPD, BITS  
PILANI - 333 031 (RAJ)**